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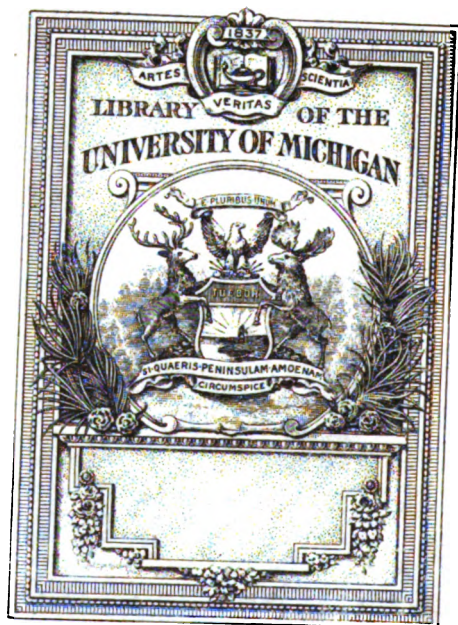
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# *The Journal of political economy*

James Alfred Field, University of Chicago. Dept. of Political  
Economy, University of Chicago, Western Economic Society



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# THE JOURNAL OF POLITICAL ECONOMY

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## INDEX NUMBERS AND THE STANDARD OF VALUE.

### I.

THE primary object of the index number is to measure or express variations in the value of money, and a little reflection will show that because of its object or end every index number involves some standard or unit of value. This standard of value may not be explicitly predicated, because on its face the index number is merely an objective, inductive investigation of prices. But when we reduce from these prices an expression of the change in the value of money, we have tacitly or explicitly set up the commodities—or a part of the commodities—to which these prices pertain, as a standard of value.

It is the belief of the writer that the index number and its peculiar problems can only be understood from the standpoint of the standard of value, and that, on the other hand, the discussion of the index number, which has now extended over more than a century, contains an important and a neglected contribution to the subject of the standard or unit of value. The object of the present paper is to supply a general theoretical introduction to the difficult and perplexing subject of index numbers

and at the same time to sum up the contribution of the statisticians to the old controversy of the standard or measure of value. I may add that in tracing the early history of the index number this object has been steadily kept in view: no attempt has been made either to describe each step or to mention the name of every contributor.

#### I. THE CONSUMPTION STANDARD.

It would be difficult to determine at just what point in the development of economic thought the great importance of devising some method of measuring variations in the value of money was first recognized, but as early as 1707, in any event, the subject had been brought to the attention of Bishop Fleetwood, in an extremely interesting problem in equity, and had elicited from him the familiar dictum that the value of money depends upon the necessities and conveniences which it will buy. "For money is of no other use," he wrote, "than as it is the thing with which we purchase the necessities and conveniences of life."<sup>1</sup>

We form our concept of a definite change in the value of money from observations of changes in single prices. If a bushel of wheat costs \$1 this year, whereas last year its price was \$2, we say that the purchasing power of money in wheat has risen 100 per cent. But the value of money comprehends its purchasing power in all directions, over all goods consumed by the individual or group of individuals in question. Consequently, we must include in the measurement all goods consumed by the group to whom the measurement refers. Before Bishop Fleetwood's time changes in the value of money had been usually calculated from the prices of corn alone. In the crude measurement which he made on page 136 of the *Chronicon Preciosum* there were included the prices of wheat, oats, beans, ale, cloth, and meat.

But it is apparent that another factor must also be taken into consideration. The principal motive which instigated the early

<sup>1</sup> *Chronicon Preciosum*, ed. 1745, p. 48.

measurements was the desire to ascertain how real wages were moving; how the wage-earner was affected by changes in the general purchasing power of money. From this standpoint it is evident that changes in the prices of some goods are far more important than similar changes in the prices of other goods. If the price of corn rose 50 per cent., it was of supreme importance to the wage-earner of the eighteenth century. But a rise in the price of pepper did not effect him materially. For like reasons a fall of 50 per cent. in the price of pepper would not offset a rise of 50 per cent. in the price of corn. Evidently some method must be found of estimating the relief occasioned by falling prices in terms of the hardship occasioned by rising prices. The relative importance of the various goods must be ascertained and used before a true net result can be reached.

The first writer to take these facts into account was Sir George Shuckburgh-Evelyn, the inventor of the index number.<sup>1</sup> His "Estimate of the Depreciation of Money Since the Year 1050" was appended, rather irrelevantly, to a paper on "Standards of Weight and Measure." The calculation was rough and incomplete—"slovenly" some one has termed it. Like Bishop Fleetwood before him, he took occasion to apologize for meddling with such vulgar business.

Shuckburgh included in his calculations the prices of day labor and fourteen commodities. The year 1550 was selected as the standard year or "datum line," and the general price level of that year was represented by 100. No prices in their ordinary forms were given. Each price current in the year 1550 was represented by 100, and all other prices were given in the form of ratios or percentages of 100. Thus, if wheat sold for two shillings a bushel in 1550 and for six shillings in 1650, the two prices would be represented by 100 and 300, respectively. These ratios will be spoken as *price-variations* in this paper. They have been called *percentages* and *index numbers*. But the term

<sup>1</sup> If it may be termed an invention. His measurement is to be found in the *Philosophical Transactions* for 1798, p. 309.

*index number* is most appropriately applied to the average of all the price variations.

An index number computed as in the preceding paragraph is known as a simple or unweighted index number. The various prices are taken into account on an equal footing. If wheat rises 50 per cent. and pepper falls 50 per cent. in price, the fall of pepper exactly counterbalances the rise of wheat. Fleetwood's calculation would have been of this nature had it been carried out. Shuckburgh's calculation took account of the greater weight or importance of some prices. Twelve of the prices, as is indicated in the punctuation of the footnote,<sup>2</sup> were grouped together and made equal to any one of the three other prices, so that the influence of either wheat, meat, or wages in determining the result was twelve times as great as the influence exerted by any one of the remaining articles.

Shuckburgh's paper was followed in the early years of the present century by several valuable works bearing upon real wages and the course of prices, from Tooke and Arthur Young.<sup>3</sup> The latter was probably the first economist to use family budgets in estimating the change in the value of money.<sup>3</sup> But for the present purposes the most important writer of the first quarter of the nineteenth century is Joseph Lowe, in whose volume, *The Present State of England in Regard to Agriculture, Trade, Finance, etc.*,<sup>4</sup> the idea of the tabular standard appears probably for the first time. The merit of Lowe's work lies not so much in the contribution of new ideas as in the clearness with which he invested the theory implicitly contained in Shuckburgh's method. Until Lowe's time the problem had been vaguely conceived as an attempt to measure the effect of independent price variations. The net change in a vague price level was to be

<sup>2</sup> Wheat; meat; day labor; horse, ox, cow, sheep, hog, cock, hen, goose, butter, cheese (sic), ale, small beer.

<sup>3</sup> TOOKE, *High and Low Prices Since 1792*. YOUNG, *An Inquiry into the Progressive Value of Money in England*.

<sup>3</sup> YOUNG, *Inquiry into the Rise of Prices in Europe*.

<sup>4</sup> I quote from the American edition of 1824.

estimated by measuring the innumerable changes in the separate prices which composed it. Lowe rationalized the whole investigation by bringing it into direct connection with the theory of value. He attempted to show that the commodities consumed by any community, taken in the relative quantities in which they are consumed, may be assumed to represent the standard unit or measure of value. Given this consumption standard of invariable value, and our problem resolves itself into the simple task of finding the variations in its total cost. Thus, if  $V'$  represent the value of money in  $T'$ , the first epoch of time, and  $V''$  the value of money in  $T''$ , the second epoch,

$$\frac{V''}{V'} = \frac{\text{Total price of (constant consumption list in } T')}{\text{Total price of (constant consumption list in } T'')}$$

Modified forms of the tabular or *consumption standard*, as it will hereafter be called, have been employed in the computation of index numbers by several statisticians of the present generation. The expression of the relation of these index numbers to the ideal consumption standard will be facilitated by the adoption of the following symbols :

$c_1, c_2, c_3 \dots c_n$  = commodities.  
 $p_1', p_2', p_3' \dots p_n'$  = their respective prices in  $T'$ .  
 $p_1'', p_2'', p_3'' \dots p_n''$  = their respective prices in  $T''$ .  
 $q_1', q_2', q_3' \dots q_n'$  = the respective quantities consumed in  $T'$ .  
 $q_1'', q_2'', q_3'' \dots q_n''$  = the respective quantities consumed in  $T''$ .

In this nomenclature, the simple unweighted index number will be represented as follows :

$$\frac{V''}{V'} = \left( \frac{p_1'}{p_1''} + \frac{p_2'}{p_2''} + \dots + \frac{p_n'}{p_n''} \right) \div n. \quad (1)$$

In the symbols adopted above allowance has been made for the fact that the actual consumption of the various commodities varies irregularly from epoch to epoch. The consumption standard requires, however, that we assume a fixed commodity or

$\frac{V''}{V'}$  will be used to represent the change in the value of money. Index numbers are usually, however, given in the form  $\frac{V'}{V''}$  — “the change in the price level.”

consumption list as standard; e. g.:  $q_1 c_1 + q_2 c_2 - - - - q_n c_n$ .

From which we have the consumption index number:

$$\frac{V''}{V'} = \frac{q_1 p_1' + q_2 p_2' - - - - + q_n p_n'}{q_1 p_1'' + q_2 p_2'' - - - - + q_n p_n''} \quad (2)$$

As we have no accurate statistics of consumption, (2) is usually computed from (1) in actual practice by weighting the price variations in rough accordance with their importance in consumption. It is evident, however, that in accordance with our assumption of a fixed consumption list, the exact weights would be the amounts expended upon the respective commodities in the second epoch,  $T''$ .

$$\frac{V''}{V'} = \frac{\frac{p_1'}{p_1''}(q_1 p_1'') + \frac{p_2'}{p_2''}(q_2 p_2'') - - - - + \frac{p_n'}{p_n''}(q_n p_n'')}{q_1 p_1'' + q_2 p_2'' - - - - + q_n p_n''}.$$

If we were computing the index number in its usual form,  $\frac{V'}{V''}$ , it is apparent that we should have to employ as weights the respective amounts expended in the first epoch.

The essential defect of the consumption standard is, of course, the fact that the consumption of society is not fixed. When the price of a commodity rises, we buy some substitute, and thus neutralize to a certain extent the hardship involved in the rise of price. When a commodity falls in price we use more of it, though under the new conditions and greater consumption we do not enjoy the commodity as much per unit, nor would we pay as much for it. We thus have two different standards of value: the consumption list of  $T'$  and that of  $T''$ . Both are wrong, and, in consequence, an average or mean of the two consumption lists is usually employed. As the quantities can be averaged in an infinite number of ways, there is no limit to the number of these average standards which may be suggested. Professor Edgeworth has collected a number of these compromises in his monograph published in the *Report of the British Association* for 1887 (page 265). I quote two of these for purposes of illustration, and add another—No. 5—suggested by a

reading of Lehr's *Beiträge zur Statistik der Preise*. So far as I can see, it is neither better nor worse than the other members of this group.

$$\frac{V''}{V'} = \frac{1}{2} \left( \frac{q_1' p_1' - \dots + q_n' p_n'}{q_1' p_1'' - \dots + q_n' p_n''} + \frac{q_1'' p_1' - \dots + q_n'' p_n'}{q_1'' p_1'' - \dots + q_n'' p_n''} \right). \quad (3)$$

$$\frac{V''}{V'} = \frac{\frac{1}{2}(q_1' + q_1'')p_1' - \dots + \frac{1}{2}(q_n' + q_n'')p_n'}{\frac{1}{2}(q_1' + q_1'')p_1'' - \dots + \frac{1}{2}(q_n' + q_n'')p_n''}. \quad (4)$$

$$\frac{V''}{V'} = \frac{\left( \frac{q_1' p_1' + q_1'' p_1''}{p_1' + p_1''} \right) p_1' - \dots + \left( \frac{q_n' p_n' + q_n'' p_n''}{p_n' + p_n''} \right) p_n'}{\left( \frac{q_1' p_1' + q_1'' p_1''}{p_1' + p_1''} \right) p_1'' - \dots + \left( \frac{q_n' p_n' + q_n'' p_n''}{p_n' + p_n''} \right) p_n''}. \quad (5)$$

It is needless to say that, in addition to the theoretical difficulty just mentioned, the consumption index number is beset by many practical problems arising from the impossibility of securing accurate statistics of consumption or complete statistics of prices. The latter raises the grave question whether in the actual computation of index numbers it is better to include as many price variations as possible, or to restrict the calculation to the prices of very important articles. This question, which is as difficult as it is important, will be considered in a subsequent paper. The lack of accurate statistics of consumption makes it impossible to secure the weights which the consumption index number seems to require; but this difficulty, on the other hand, does not appear to be serious. A careful comparison of weighted and unweighted index numbers calculated from the same price variations shows that the difference is usually inappreciable in comparison with the general margin of error to which all such calculations are liable. Indeed, this result might be expected *a priori*. As we know of no connection between the price variation and the importance of a commodity—the prices which rise are as likely to pertain to important commodities as those which fall, and *vice versa*—it is to be expected that the weights given to price variations below the arithmetical mean will about offset those given to price



variations above that mean, and that the weighted average will be substantially the same as the arithmetical average.

But the change in the consumption list—the variation in the standard unit—is more than a difficulty; it is an essential defect that vitiates the whole consumption standard. A change in the *per capita* consumption of a commodity is, by all theories of value, the surest indication of a change in the value of the commodity, and, in consequence, a standard of value made up of commodities whose quantities are ceaselessly changing lacks all fixity of value and is, therefore, no standard. The familiar weighted index number is merely the old “tabular standard” in operation, and both when examined closely are found defective.

To the statement that a change in quantity consumed is practically always equivalent to change in value per unit, the “practical man” would probably reply that he cares nothing about this metaphysical species of value; that all he desires is to find the variation in the “purchasing power” of money over commodities in general, assuming that a commodity is a commodity and of fixed importance in both epochs and in whatever quantity consumed; that this is what the statistician, the statesman, and the student of currency is most concerned in doing.

And in this statement we should all heartily acquiesce if it were possible to measure, even approximately, the change in the purchasing power of money so defined. But it is not possible. If we take our “practical” friend literally, it follows that money has a purchasing power over the commodity  $c_1$ , another purchasing power over  $c_2$ , a different purchasing power over  $c_3$ , and so on. When the prices of these commodities vary in different directions and degrees, we have a number of incommensurable price variations which, by our definition of purchasing power, cannot be reduced to an average. John Stuart Mill, for instance, would probably have taken this stand if he had not based his conclusions in this matter upon a wholly impossible case: that where a dollar buys exactly twice as much of each commodity in one time or place, as in the other. In this case the consumption standard is, of course, feasible.

But the "practical" man is usually willing to admit that in this calculation certain commodities and prices are much more important than other commodities and prices, and he proceeds to construct weights in accordance with the importance of the several commodities in consumption. The essential fallacy involved in this procedure will best be shown, perhaps, by stating the complete problem in its lowest terms. In  $T'$  and  $T''$ , respectively, the community in question actually expends

$(q_1' p_1' + \dots + q_n' p_n')$  dollars for the commodities  $q_1' c_1 + \dots + q_n' c_n$ ,  
 $(q_1'' p_1'' + \dots + q_n'' p_n'')$  dollars for the commodities  $q_1'' c_1 + \dots + q_n'' c_n$ .

The  $q$ 's and  $p$ 's being supposed to be known, we may designate by  $A'$  etc., the expressions  $\left( \frac{q_1'}{q_1' p_1' + \dots + q_n' p_n'} \right)$ , etc., and write:

Purchasing power of the dollar in  $T' = A_1' c_1 + A_2' c_2 + \dots + A_n' c_n$ ,

Purchasing power of the dollar in  $T'' = A_1'' c_1 + A_2'' c_2 + \dots + A_n'' c_n$ .

The index number which we desire is the ratio between the right-hand members of these equations.

But these members cannot be reduced to a simple numerical ratio as they stand, except, indeed, in the imaginary case in which  $\frac{A_1'}{A_1''} = \frac{A_2'}{A_2''} = \frac{A_n'}{A_n''}$ . They are composed of diverse and

heterogeneous commodities which must be weighted in accordance with their importance—*i. e.*, expressed in terms of a common unit—before the index number can be secured. And the commodities have but a single attribute or quality in common—that of price or purchasing power, dependent upon their ability to satisfy human wants. Their importance is proportional, at any given time, to their prices.

But when we come to weight the commodities in accordance with their prices we encounter the essential difficulty which vitiates this method of measurement. Shall we take the price relations of  $T'$ , or those of  $T''$ , or an average between the two? We can do none of these. The importance of the commodities is not proportional to their prices in  $T'$  or  $T''$  because there is exactly the same reasons for using one set of price relations as the other, and yet they give different results. Both, then, are

necessarily wrong. But neither can we average these price relations, because they are expressed in terms of the monetary unit and *ex hypothesi* this unit varies between  $T'$  and  $T''$ . The reason why this essential defect of the weighted index number is not more clearly understood is probably to be found in the lack of accurate statistics of consumption. As it is a foregone conclusion that only the roughest approximations of the weights can be secured, nobody seems to have taken the trouble to inquire whether, theoretically, there was any definite mathematical quantity to approximate.

I have expressed the problem in this manner because this is the natural and logical way of attacking it. In the actual computation of index numbers, however, the practice is usually to ascertain the individual price variations and then weight them in accordance with the importance of the commodities in consumption. But this importance can be determined only from the expenditures for these commodities in actual consumption. And here again we meet the old difficulty. Shall we use the expenditures of  $T'$ , those of  $T''$ , or an average between them? As in the preceding paragraph, and for the same reasons, we cannot use any of these as weights.

For reasons similar to those given in the two preceding paragraphs, it is also impossible to average the consumption of the various commodities, as is done in the index numbers quoted on page 7. We cannot average the quantity of  $c_x$  consumed in  $T'$  and  $T''$  because for present purposes  $c_x$  is not the same thing in  $T'$  as in  $T''$ . The purchasing power of money is determined by its command over a certain commodity list, composed of different quantities of different commodities. Each commodity, then, at any given time, represents or is a certain quantity of purchasing power. Now when we average the quantities  $q'$  and  $q''$ , of any commodity, we assume that the purchasing power of that commodity is the same in  $T'$  as in  $T''$ ,—an impossible assumption, as the purchasing power of almost every commodity (and  $c_x$  is any commodity) varies in any considerable interval of time,  $T'-T''$ .

There is, thus, nothing to be gained by abandoning "value" and confining ourselves to "purchasing power." The impression seems to have become general, not only among practical men, but among certain economists that metaphysical subtleties are to be avoided by dismissing the attempt to measure the change in what the Ricardians called the "real value" of money, and confining our efforts to the measurement of change in the purchasing power; or to be more practical and objective still, to the measurement of the "average variation in prices" or the "net change in the general level of prices." But as we have seen, not a single difficulty is avoided by this manipulation of words. The problem that worried Ricardo is before us still. As has been shown, there is—from the standpoint of the consumption standard at least—no average variation of prices, no net change in the general level of prices. If we pay \$1,000 for twenty horses, we can usefully and intelligently say that their average price is \$50. But we can no more average weights, as described above, than we can average one opera, ten strawberries, and twenty donkeys. This, I take it, is what Professor Marshall meant when he said: "A perfectly exact measure of purchasing power is not only unattainable, but even unthinkable."<sup>1</sup> Like Lewis Carroll's nonsense verses, the phrase "average variation of prices" sounds well, but means nothing.

## II. THE LABOR OR PRODUCTION STANDARD.

One of the gravest and most obvious practical defects of the consumption standard is its inadequacy as a standard of deferred payments. If in  $T'$ , A borrows \$100 from B when both are making \$1 a day, and prices are at a point represented by 100, how much should A repay in  $T'$  when both are making \$2 a day and prices are at a point represented by 95? A is as able to repay \$200 as B was to loan \$100, and yet according to the consumption standard B should return only \$95. Imagine the reverse case, in which prices rise and wages fall, and it will be still more apparent that the consumption standard is wholly

<sup>1</sup> See *Third Report of the Royal Commission of Trade and Industry*, pp. 422, 423.

one-sided; fairly equitable from the standpoint of the consumer or creditor, but completely unsuited to voice or express the relative ability of the debtor or producer to repay.

An examination of pages 9 and 13 of the first volume of the Aldrich Report upon *Wholesale Prices, Wages, and Transportation* will reveal the fact that the illustration which has been used here is not a fanciful one, but based upon actual conditions as they existed at the beginning and end of the period covered by that report. During this period—measured by the consumption standard as closely as it can be applied in practice—prices fell a little while wages rose a great deal, yet the consumption standard constitutes an equitable standard of deferred payments only on the assumption that prices and wages vary in the same direction and, approximately at least, in the same ratio. It is interesting to note that the writer who first proposed the consumption or tabular standard—Lowe—understood clearly what many of his followers do not: that the consumption standard, if tenable, would apply only to a limited class.<sup>1</sup>

That this defect in the consumption standard should be noticed, and measures taken to devise a standard adapted to the needs and interests of producers as opposed to consumers, was inevitable. The consumers' standard came from a group of writers who were preëminently concerned with the welfare of the laborer as affected by the change in real wages, whose interests were humanitarian rather than scientific and whose standard was practical rather than theoretical; the principal commodities taken in the average quantities in which they were consumed furnished a standard sufficiently precise for their purposes. The production standard shows a similar hereditary bias. It proceeded from a body of theorists who endeavored to formulate the laws supposed to obtain in a well-simplified industrial world, and who consistently emphasized and claimed that the prosperity of the laborer depended upon the welfare of the producer. The

<sup>1</sup> See appendix to *Present State of England*, entitled: "How far are particular tables required for particular classes?" "A scale formed on the table in the text is adapted to very many persons in the middle and upper classes. . . . But in regard to several of the classes currently termed productive, the question is different. . . ."

result was the cost of production theory of value and the substitution of a single commodity—labor—for all commodities, as a standard of value.

It would hardly be profitable to thresh over the old classical controversy about the measure of real value, or to point out the delicate differences between those who accepted some form of the labor standard. As formulated by Adam Smith, the labor standard is purely subjective: a standard of disutility based upon the assumption that if there are no great variations in the time and painfulness of labor, the labor may be regarded as constant in value.<sup>1</sup> Unfortunately, in some respects, Smith also formulated the doctrine that in primitive society commodities will exchange in proportion to the respective amounts of labor expended in their production. From this theory it is easy, though illogical, to conclude that the value of labor is invariable at all times. As has so often been pointed out, this fact seems to have been understood by Smith. He was quite willing that his labor standard should derive whatever support it could from the more general cost of production theory, but he did not base the labor standard upon the latter theory. He went boldly over to a subjective basis and affirmed that a fixed amount of labor sacrifice is equivalent to or *is* a constant amount of value. Labor is the standard not because the ratio of exchange between two commodities tends to be the same as the ratio between the respective amounts of labor necessary to produce them, but because the value of a fixed quantity of labor is also fixed. With this postulate there is no necessity for the cost of production theory.

The classical economists, however, interpreted the labor standard in the light of the cost of production theory of value, and the inevitable result of this interpretation was its successive modification and final rejection by the best minds of the first half of the nineteenth century. Smith's dictum, "Equal quantities of labour, at all times and places, may be said to be of equal value to the labourer," entails the obvious consequence that the real

<sup>1</sup> *Wealth of Nations*, book i. chap. v.

wages of the laborer are of invariable value. This was so contradictory of history and everyday experience that Ricardo had no trouble in securing a general acceptance of his emendation that it was not the labor for which a commodity would exchange, but the labor incorporated or realized in it, that measured its value.<sup>1</sup> Then it became apparent that as in modern society goods are produced by the co-operation of labor and capital, the latter must in some way be linked with labor in the standard of value. Next it was recognized, dimly at least, that the cost of production theory of value is a theory of the causes which would regulate exchange value in an artificially simplified industrial world, and that what was required in a standard of value was a constancy in the forces or causes which regulate its value. This necessitated the further modification that the ideal standard was one of labor sacrifice and the abstinence involved in saving, and a doubt naturally arose as to the commensurability of the component parts of the standard and was argued at great length by Malthus in his *Measure of Value Stated and Illustrated*. Finally, there appeared, in germ at least, Professor Marshall's thesis that, as contemplated by the cost of production theory, labor is itself a product of labor, and that to estimate the labor incorporated in any commodity we would have to summate an indefinite series, about the early terms of which we can know nothing. By this time the discussion had reached a depth of speculative obscurity which almost justifies the contempt which the younger Mill evidently felt for it all.<sup>2</sup> His feeling was probably intensified by the admission of such men as Ricardo and Cournot that while we can imagine an invariable standard and "hypothetically argue and speak about it" as if we possessed it, the standard itself is unattainable.<sup>3</sup>

The labor standard possesses a certain plausible importance

<sup>1</sup> Also stated by Lord Lauderdale in his *Inquiry into the Nature and Origin of Public Wealth*, p. 26 *et seq.*

<sup>2</sup> *Principles of Political Economy*, book iii. chap. xv.

<sup>3</sup> RICARDO, *Principles*, chap. xx; and *Letters of Ricardo to McCulloch*, edited by Hollander, p. 154 *et seq.* COURNOT, *The Mathematical Principles of Wealth*, chaps. i and ii.

as a standard of deferred payments and it has been indorsed for this and other purposes by many prominent economists, including, it would seem, Professor Marshall.<sup>1</sup> As a standard of value it has peculiar and fatal deficiencies, but in its development and theoretical weaknesses it is essentially akin to the consumption standard.

Representing wages or the prices of the different kinds of labor by  $w_1', w_2', w_n'$ , in  $T'$ , and by  $w_1'', w_2'', w_n''$ , in  $T''$ , we have according to Adam the *unweighted labor index number*

$$\frac{V''}{V'} = \left( \frac{w_1'}{w_1''} + \frac{w_2'}{w_2''} + \dots + \frac{w_n'}{w_n''} \right) \div n. \quad (6)$$

This is evidently similar to the simple arithmetical index number of prices marked (1), and has the same defect; it takes no account of the relative importance of the various kinds of labor. The difficulty may be treated as the similar difficulty was treated in the case of the consumption index number. If we regard society as a huge individual expending the same amounts of labor each year, we will have a standard labor list the various elements of which remain constant. Thus, representing quantities of labor by  $q_1, q_2, q_3, q_n$ , etc., we have

$$\frac{V''}{V'} = \frac{q_1 w_1' + q_2 w_2' + \dots + q_n w_n'}{q_1 w_1'' + q_2 w_2'' + \dots + q_n w_n''}.$$

This may be called the *weighted labor index number*. It may be obtained from the unweighted number by weighting the latter with the respective amounts expended upon the several kinds of labor in the second epoch. As in the consumption index number,  $q_1, q_2, \dots, q_n$  represent some mean or average of the respective quantities  $(q_1' + q_1'')$ ,  $(q_2' + q_2'')$ ,  $\dots$ ,  $(q_n' + q_n'')$ .

Mr. Bowley has used a composite labor list, made up of the various kinds of labor in the proportions in which they are on

<sup>1</sup> "When it (appreciation of gold) is so contrasted, and used in denoting a rise in the real value of gold, I then regard it as measured by the *increase* in the power which gold has of purchasing labour of all kinds—that is, not only manual labor, but the labour of business men and all others engaged in industry of any kind." *Final Report of the Gold and Silver Commission*, Appendix I, p. 1. (The word "increase" italicized in the above is by mistake printed "diminution" in the Report.)



the average actually expended, in order to measure the average variation of wages.<sup>1</sup> Its use for this purpose need not be discussed here.

But as a standard of value it is evidently open to all the objections cited against the consumption standard and the index numbers based upon that standard. If we attempt to weight the independent wage variations according to the average expenditure upon the several kinds of labor in  $T'$  and  $T''$ , we are confronted by the old difficulty that these expenditures are expressed in different units and hence cannot be averaged. For the same reason we cannot average the quantities of any particular kind of labor expended in  $T'$  and  $T''$ : the quantity and productivity of the labor having changed, its value has not remained constant. Labor is like any other commodity in respect to the fact that its value is a function of its quantity. In the third place the general theory upon which this standard is based entails the conclusion that the real wages of any particular class of laborers are invariable in value. Either this is untrue, or the kind of "value" of which it is true does not concern us. If a day's labor procured  $x$  commodities in 1860 and  $x+y$  commodities in 1890, it is idle to say that the value of  $x$  is equal to the value of  $x+y$ . If it procured  $x$  in 1860 and  $nx$  in 1890, we are quite willing to admit that its value in 1890 may not have been precisely  $n$  times as great as it was in 1860, but under no tenable theory of value can it be exactly the same in 1890 as in 1860.

There is one other important theoretical defect in the weighted labor standard: as constituted, a variation of  $x$  per cent. in the wages of a high-grade laborer has more influence in determining the result than a variation of  $x$  per cent. in the wages of a low-grade laborer. As the foundation of this standard is labor sacrifice, this should not be the case. The variation in the wage of the sweat-shop worker toiling sixteen hours a day for a bare living is not less important than the variation in the wage of a trust company's president who receives a salary of \$100 a day for his business sagacity. If, for instance, we are to use this

<sup>1</sup> See *Economic Journal*, vol. vi. p. 372 et seq.

standard as a standard of deferred payments, there seems no reason why one kind of wages should be given a greater *per capita* share in influencing the result than any other kind. Smith, Ricardo, and Malthus avoided all the mathematical difficulties of the labor standard by assuming that there were different qualities or grades of labor, and that the variation in wages would be substantially the same in all grades. This is exactly similar to the assumption upon which the consumption standard is based. It is not only untrue, but it is inadmissible as a working hypothesis because its use necessitates further violations of mathematical accuracy.

It is now generally admitted that the labor standard is a standard of cost of production, and this fact explains why it has been defended by so many writers as a standard of deferred payments: they desire to see debts adjusted, if they are adjusted at all, in accordance with the change in the general power of the community to earn money. For this purpose, however, our index number should be one of income rather than of wages, and might be represented by the formula

$$\left( \frac{I_1'}{I_1''} + \frac{I_2'}{I_2''} - \dots - + \frac{I_n'}{I_n''} \right) \div n. \quad (8)$$

where  $I_1, I_2, \dots, I_n$  represent the incomes of different individuals. A similar, but theoretically more objectionable, formula has been proposed by Professor Newcomb,<sup>1</sup> who suggests that debts be adjusted in accordance with the movement of the national income, thus:

$$\frac{I_1' + I_2' - \dots - + I_n'}{I_1'' + I_2'' - \dots - + I_n''}. \quad (9)$$

This seems more objectionable than (8) because it attaches a greater importance to the variation of large incomes than that of small incomes.

If we assume that expenditure is equal to income in  $T'$  and  $T''$ , or bears the same proportion to income in  $T'$  and  $T''$ , (9) is equivalent to

$$\frac{q_1' p_1' + q_2' p_2' - \dots - + q_n' p_n'}{q_1'' p_1'' + q_2'' p_2'' - \dots - + q_n'' p_n''}. \quad (10)$$

<sup>1</sup> *Principles of Political Economy*, p. 210.

This formula has been suggested by Professor Edgeworth, not—it is significant to note—as an expression of the change in the value of money, but as “a standard for deferred payments—calculated to afford to the consumer a value-in-use varying with the national affluence, after the manner of a sliding scale.”<sup>1</sup>

But in reality the labor standard and its modifications are not suited to serve even as standards of deferred payments, because they are adjusted wholly to the interests of the productive classes, and a large and important part of the creditor class is not productive. As Professor Böhm-Bawerk<sup>2</sup> has so clearly pointed out, the ultimate standard of value, and *a fortiori* the ultimate standard of deferred payments, must sum up in itself the merits of both the consumption and the labor standards. It must rest secure upon its own foundation, but it must effect, at the same time, a rational compromise between the two others.

The real service of the economists who discussed the labor standard in the early part of the last century—to catch up the historical thread again—was the differentiation of *real value* from *relative* or *exchange value*. Relative value, as they used the term, meant ratio of exchange, and from this standpoint money has as many exchange values as there are goods for which it will exchange. As shown in the preceding section, it is impossible to measure the net variation in ratios of exchange except where the variation has been the same in each ratio.

In reality, when the price of a commodity changes, nothing definite can be inferred concerning the change in the value of money. The measure and the measured are both exposed to the forces which make things cheap and dear. In consideration of this fact real value was distinguished from relative value. If one unit of gold exchanged for  $x$  units of bread, a logical explanation was found in the theory that one unit of gold contained  $x$  times as many units of real or generic value as did one

<sup>1</sup> *Report of the British Association*, 1887, pp. 271, 272.

<sup>2</sup> *Annals of the American Academy*, vol. v. part i. p. 208.

unit of bread. The moment we assert that two dissimilar and materially incommensurable commodities possess the same value, we postulate the existence of some measurable quality or attribute common to both.

To the query, what is the common quality of all valuable goods? Adam Smith answered that it was the labor sacrifice or disutility for which it would exchange. Ricardo answered that it was the labor sacrifice worked up or realized in it. At present it is clearly understood that sacrifice is not value, disutility not utility, and that there is no necessary or fixed connection between the two. The proper answer to the query was given as early as 1833 by W. F. Lloyd, D.D., who filled the Drummond chair of political economy at Christ Church, Oxford, from 1832 until 1837.

Lloyd pointed out very clearly what has since been explained so minutely by Jevons, Böhm-Bawerk, and others, that the value of a commodity depends upon the marginal intensity of the want it satisfies; that want is satiable, and that, in consequence, value depends largely upon the quantity of the commodity consumed. In his "Lecture on the Notion of Value as Distinguishable, not only from Utility, but also from Value in Exchange," Lloyd explains the gradual satiability of any want, and says: "It is on want thus estimated that value depends. . . . The gratification derivable from the use of an object must be taken to be equal to the want of it, thus estimated; and the value, properly speaking, is the feeling of affection or esteem for the object, arising from a sense of the loss of the gratification contingent on the loss of the object. . . . In its ultimate sense, then, the term undoubtedly signifies a feeling of the mind, which shows itself always at the margin of separation between the satisfied and unsatisfied wants. . . . As I have explained the idea, it (value) consists in the real importance of an object to the person who possesses it." These words sound very familiar to readers of Böhm-Bawerk and others of the Austrian school. They have been taken from a volume of lectures by Lloyd published at Oxford in 1837.

## III. THE MODERN INDEX NUMBER.

As in the case of the consumption and labor standards, the modern index number was a product of peculiar economic conditions existing at the time of its appearance. In the early years of the present century the principal concern of practical economic thinkers was about the wage-earner and the condition of the poor. With the passage of the reform acts and the repeal of the corn laws the predominance of interest passed to another problem. Following the report of the Bullion Commission and the resumption of specie payments by the Bank of England, a deep interest in the quantity theory of money had been aroused, which was only intensified by the passage of the Bank Act of 1844. For many years thereafter measurements of variations in the value of money were made chiefly for the purpose of testing the quantity theory of money, and this new *motif* showed itself in the methods of investigating changes in the value of money which were employed.

If the only (or the chief) cause of the variation of prices is a sudden and marked change in the quantity of money in circulation, we might expect to see all prices vary alike both in amount and direction. In the dispute between the adherents of the currency principle, and in investigating the effects of the influx of Californian and Australian gold, it became necessary to discover the cause of variations in prices. If the cause was on the money side it might be expected to show itself, as noted, in a certain uniformity of variation. If the separate price-variations were completely sporadic, however, a strong presumption was raised against the cause of variation having proceeded from the money side. In either event, the collection of price-percentages having been made, it was convenient for purposes of expression and illustration, to add them, take an arithmetic mean, and call the result the net variation in the general level of prices. The vital phenomena were the separate price variations. Any combination of these as a quantitative expression of the average amount of change was incidental. The index number appeared as a by-product.

Most of the investigations into the course of prices at this time were thus examinations into causes rather than measurements of actual changes. Porter introduces his index number in a discussion of the question, "whether under the régime of a circulating medium convertible at pleasure into gold, any issue of paper can be made and kept out to an excess that will tend to raise the general prices of goods."<sup>1</sup> Newmarch in his original investigation even neglected to compute a total index number.<sup>2</sup> Jevons himself was as much interested in proving a casual relation between money and rising prices as in measuring correctly the amount of the rise. The chief concern being with the individual price variations, there was no pressing reason to obtain the weights necessary to make the simple index number conform to the consumer's index number. The great object was to prove a uniformity in the price variations, and it is plain where this uniformity exists weighting is unnecessary. There was, thus, a return to the unweighted index number. By most writers of the time the latter was regarded as a mere approximation of the weighted average. But Jevons placed it upon a new and independent basis.

If Evelyn was the inventor of the index number, Jevons was its popularizer. The large amount of literature which has appeared on this subject, particularly in Germany and England, was mainly inspired by Jevons's pamphlet entitled *A Serious Fall in the Value of Gold Ascertained*, etc.<sup>3</sup> Together with a great talent for the exposition of abstruse subjects, Jevons possessed in an unusual degree the faculty of feeling and communicating a decent respect for the importance of any subject upon which he wrote. He made of this essay one of the most remarkable chapters in economic literature.

The explanation of this fact is to be found in the contradictory character of the essay. It was a peculiar mixture of truth and error. Jevons began by taking sides with Lowe and

<sup>1</sup> PORTER, *Progress of the Nation*, p. 425.

<sup>2</sup> NEWMARCH, *Journal of the Statistical Society*, 1859, p. 96 *et seq.*

<sup>3</sup> See *Investigations in Currency and Finance*, p. 14 *et seq.*

the consumption standard. Value, he asserted, "is a vague expression for potency in purchasing other commodities, and if gold has become less potent with respect to some and not less potent with respect to others, it has fallen in value."<sup>1</sup> But although he gave a formal assent to the consumption standard, he made no attempt at weighting the simple index number in order to make it conform to the consumers' index number. "Ought we to take all commodities on an equal footing?" he asks. "Ought we to give most weight to those which are least intrinsically variable in value? Ought we to give additional weight to articles according to their importance, and the total quantities bought and sold? The question, when fully opened, seems to be one that no writer has attempted to decide—nor can I attempt to decide it. I regard the fall of value as conclusively proved, although the exact nature of the problem is left amid the obscurities of economic science in general."<sup>2</sup>

Jevons gave no categorical answer to his query about weighting. But the device was omitted and there is no doubt that this omission was a deliberate answer to the problem which he had stated. But, unfortunately, he did not or could not explain his action. He accepted the consumption standard, which requires weighting and the arithmetic mean, and then computed an unweighted number with the geometric mean. Had he explained his introduction of the geometric mean his essay would probably have escaped the searching criticisms of Forsell, Laspeyres, Drobisch, and others. But the arguments which he used to defend his course were riddles rather than reasons. It is these riddles which have most effectively contributed to the study and discussion of the proper method of computing index numbers.

Long after the publication of Jevons's pamphlet these riddles were successfully answered by Professor Edgeworth, who showed the usefulness of Jevons's method by interpreting it in the light of the theory of probability and the statistical studies of Quetelet. Jevons's method, as has been just said, differs from the

<sup>1</sup> *Investigations in Currency and Finance*, p. 20.

<sup>2</sup> *Ibid.*, p. 21.

ordinary consumption index number by the absence of weighting and the use of some other than the arithmetic average. But the important difference really lies in the different interpretations put upon the price variations in the two methods. This difference will best be shown, perhaps, by an illustration.

Suppose that we had to ascertain the weight of a very large and heavy mass by means of a balance which was difficult to operate and known to be erratic and inaccurate. Two methods of procedure might be followed. We might divide the mass into a large number of particles, weigh these, and obtain our answer by adding the weights of the several particles arithmetically. This method would be somewhat analogous to the consumption index number. On the other hand, if the error of the scale was not known to be of a specific kind, we might weigh the whole mass a large number of times and take as our answer the average of the several readings of the scale. In the latter case each reading would be an independent answer in itself, no weights would be employed, and the geometrical mean, in accordance with previous experience in such work and with certain accepted scientific principles, would be preferable to the arithmetic mean. The latter operation is more closely analogous to the index number of Jevons and indicates clearly the different rôle of the price variations in the two methods. To Jevons each price variation was an independent and, before the average was computed, an equally valid answer to the question: What has been the change in the value of money? In the consumer's index number, however, each price variation is supposed to affect the value of money differently and the final answer must be obtained by summing the several variations after they have been weighted in accordance with their importance.

Professor Edgeworth has on several occasions shown very clearly the theoretical superiority of the geometric over the arithmetic mean, for the purpose of averaging price variations.<sup>1</sup> The question is really one of "better or worse," however, not one of "right or wrong," and it need not concern us here.

<sup>1</sup> See EDGEWORTH in the *Economic Journal* for March 1896, p. 137.



Practical experience with index numbers computed from the same data by different means shows that the differences are usually inappreciable in comparison with the possible errors introduced by defects in the statistical data. Jevons's method may thus be considered as the simple unweighted average of price variations, in a new interpretation.

The unweighted index number is justified in several interpretations of the problem under consideration. In the first place we may take the case of those economists who refuse to admit that money has a general or homogeneous value.<sup>2</sup> In their view, money has one value in  $c_1$ , another value in  $c_2$ , another in  $c_n$ , etc., and these values are heterogeneous. If prices vary differently the "values" of money have varied differently, and strictly speaking that is all that can be said: each price variation stands by itself as an independent and complete measure of one change in the value of money. Any combination of these percentages is meaningless, but a fictitious average or type may be secured which will serve to facilitate discussion, where quantitative accuracy is not demanded, by saving words. It is merely "a compendious way of stating facts, the full expression of which would be tedious and inconvenient."

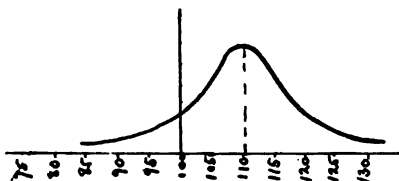
The case in which the unweighted average is most clearly applicable is that in which a sudden emission of paper money or some other cause affecting confidence in the currency has produced a general and widespread variation of prices. Owing to the nature of this cause, the variations in prices would tend to be the same, and speaking absolutely the change in the price of a single commodity would show the change in the value of money. Practically, however, if the interval of measurement  $T' - T''$  were not exceedingly short, we should be forced to take an average of a large number of price variations in order to eliminate or destroy the effect of accidental deviations from the mean type. And in this case we should use the average not as a mere dialectical device for saving words, and not as an end in itself, but as an instrument to elicit and express that variation

<sup>2</sup> Cf. WALKER, *Money in its Relation to Trade and Industry*, p. 30 et seq.

which occurred with the greatest frequency—the variation caused by the influx of new money. Moreover, if a great and preponderant majority of the price variations were of the same amount, while the deviations from this common variation were equally distributed above and below it, we should admit that “the most frequent variation” expressed, by inversion, not only the change in the value of money due to the specific cause assumed, but the net change in the value of money resulting from all causes.

Professor Edgeworth, in a series of brilliant contributions, has made this field of inquiry all his own<sup>1</sup>. The *quaesitum* of the process now under consideration may be described in his words: “This type of mean variation may be generally defined as that figure which would be presented most frequently if we were to continue indefinitely the long series of price ratios, or at least that return in whose neighborhood the greatest number of these statistics cluster. It is, in other words, the Greatest Ordinate of the complete curve, or the highest column of the rectilinear diagram which represents by its abscissa ratio between the prices of two compared epochs and by its ordinate the frequency with which that ratio would be returned if the statistics were extended over every region of industry which is subject to independent fluctuations.” Such a type is exhibited in the subjoined curve, where abscissae represent the different price variations and the ordinates represent (or vary with) the number of times the corresponding price variation occurs. If the price variation when plotted arranged themselves as shown below, we might confidently announce 110 as the index number of prices desired.

Accepting the maximum ordinate as the *quaesitum* of this method, it becomes necessary to inquire into the validity of the method and the meaning of the result in a more complicated case, that in which the origin



<sup>1</sup>See *Reports of the British Association*, 1887, p. 281 *et seq.*; 1889, p. 156 *et seq.*; and *Journal of the Royal Statistical Society*, June 1888.

of the variation in prices is obscure and the interval  $T' - T''$  long enough to permit the operation of all those industrial forces such as invention, combination, discovery of new sources or restriction of old sources of raw material, which cause variations in the prices of commodities. This is the case with which we actually have to deal.

Here again the validity of Jevons's method to elicit and express the change in the value of money proceeding from the money side might be defended on the grounds that price variations proceed from changes in the quantity of money in circulation and from changes in the conditions of production — “changes from the side of money” and “changes from the side of commodities” — that the change from the money side would be a uniform change, those from the side of commodities sporadic and irregular; and that the maximum ordinate — or the mean of the price variations best calculated to represent the maximum ordinate — would be an accurate expression of the change in the value of money arising from changes in the quantity of money in circulation.

If this theory be tenable, the result is so circumscribed as to be of little value. Index numbers are not computed with the idea of determining that part of the change in the value of money which has proceeded from a given cause. What we desire is the net change in the value of money. The ideal of the consumption standard is correct enough.

But the theory is not tenable: it errs by reason of excessive simplicity. Ordinarily changes in the quantity of money do not affect prices uniformly and would not affect them uniformly if invention, combination, and all the other industrial forces which affect prices were inoperative. A large influx of metallic money, for instance, affects prices not so much by depressing the general desire for or estimation of money as by entering subtly into the veins of trade, stimulating production, and supporting a large number of enterprises which otherwise would have foundered. In a large number of industries it intensifies the law of increasing returns and *pro tanto* operates to diminish

prices. In a smaller, but very important, number of industries it intensifies the operation of the law of decreasing returns and *pro tanto* operates to increase prices. Under ordinary circumstances, therefore, it seems impossible to use Jevons's method, as I believe he thought it could be used, to measure the variation in the value of money due to the change in the volume of money.

The immediately preceding paragraphs will suggest the answer to the two queries with which we are at present concerned. Whether this process be at all applicable, and whether, if applicable, it yield as a result the net variation in the value of money or something else, depends upon the symmetry of the curve of price variations. In order that the maximum ordinate should represent the net variation in the value of money, the curve would have to be exactly symmetrical; the price variations below the variation of greatest frequency would have to be exactly equal in number and importance (or in both combined) to the price variations above it. No one who has given a moment's thought to the nature and cause of price variations in ordinary periods would have the slightest expectation of finding this symmetry in a curve of price variations, and, as a matter of fact, we do not find it, or anything like it. The operation of the two great laws of increasing and decreasing returns, and the fact that prices may (theoretically) rise indefinitely while they cannot fall more than 100 per cent., are practically sufficient in themselves to destroy the possibility of a symmetrical distribution of the price variations. The unweighted index number, then, furnishes neither the net variation in the value of money nor the variation arising from the money side. What it does furnish is a broad general type of price variations, the usefulness of which is very much less than that of the net variation and something more than that of the fictitious average described on page 24.

But, as stated above, not only the meaning of the result but the general applicability of the process depend upon the symmetry of the curve of price variations. It is not sufficient that one (set of) price variation(s) should be in a majority; it must

be in a large majority, and as more and more prices are included within the scope of the investigation the curve must become smoother as it recedes from the apex, and the slope of the curve steeper: "it is a characteristic of the things with which probability is concerned to present, in the long run, a continually intensifying uniformity."<sup>1</sup>

Just what degree of symmetry in the curve of price variations is necessary to justify the employment of this process is a question which the writer is not competent to treat. The following reasons are given, however, for the doubt that is in him concerning the suitability of this process to elicit even a mean type of price variations with the requisite qualifications.

1. Changes in the volume of money can be expected to produce a general or uniform variation in prices only when the currency is an inconvertible paper currency and the interval of measurement very short. This is a case which seldom occurs.

2. There are constantly at work two great sets of causes, in addition to the one mentioned above, which tend to influence prices in different directions. The first, consisting of competition, invention, increase of capital, betterment of methods and all the causes known loosely as industrial improvement, operate to reduce prices. The second, including industrial combination, possibly, exhaustion of sources of supply, increase of indirect taxation, and pressure of population where the source of supply is fixed, *e. g.*, urban land, operate to increase prices. Thus, whatever the nature of the influence exerted by changes in the supply of money, it must be assisted by one set of important forces and resisted by another. As a consequence — and this is particularly true where the causes from the money side are operating to increase prices — we are not unlikely to get a curve with a double apex, showing two general types of price variations, the one only a little less "mean" than the other.

3. This possibility is indicated in the following table showing the frequency of the various price variations in each of the

<sup>1</sup> VENN, *Logic of Chance*, third edition, p. 455.

thirteen years, 1879–1891. The price variations or ratios, which are given as percentages of the respective prices in 1860, were counted in blocks of ten—a variation of 81, for instance, having been counted with one of 88 as a member of the group 80–90. The table is based upon returns given in the *Aldrich Report on Wholesale Wages, Prices, and Transportation*, Vol. I, pp. 30–52, the price variations being taken as they are there given, except that the twenty-seven varieties of pocketknives distinguished in the *Report* have been grouped and treated as a single commodity. The period, 1879–1891, was selected simply because it is the only period subsequent to 1860, and covered by the *Aldrich Report*, in which the currency of the United States was on a metallic basis.

The significance of these data will most readily be seen by plotting the corresponding curves. However, from the figures themselves it is apparent that in the five of the thirteen years—1879, 1880, 1882, 1885, 1886—there were subordinate movements sharply distinguished from the main movement of prices, yielding, when plotted, curves with two or more apices. The process of grouping employed here is itself equivalent to a large degree of “smoothing,” and I see no reason to believe that in any year the completed set of price returns would yield a smoother or more symmetrical curve than the one given by the prices treated—nearly 200 in each year. The point has been made by Dr. Venn and Professor Edgeworth—and it seems well taken—that some average of the representative list of price variations is likely to approach the maximum ordinate of the complete set of price variations more closely than the maximum ordinate of the representative list. But this does not mitigate the necessity of basing our inferences about the general contour of the ultimate or complete curve of price variations upon the incomplete curve which we have.

To sum up the results of this and preceding sections, we may say that there is not only some doubt as to the adaptability of price statistics to this method of treatment, but the irregularity and assymetry of the curve of price variations make it

TABLE SHOWING THE FREQUENCY OF THE VARIOUS PRICE VARIATIONS  
FOR THE YEARS 1879-1891, INCLUSIVE.

	0 per cent.	10 per cent.	20 per cent.	30 per cent.	40 per cent.	50 per cent.	60 per cent.	70 per cent.	80 per cent.	90 per cent.	100 per cent.	110 per cent.	120 per cent.	130 per cent.	140 per cent.	150 per cent.	160 per cent.	170 per cent.	180 per cent.	190 per cent.	200 per cent.	300 per cent.	500 per cent.
1879	0	1	3	1	9	22	18	47	16	25	18	14	7	4	5	2	0	0	1	4			
1880	0	1	2	2	2	7	14	30	22	37	25	22	7	3	5	2	2	2	1	1	5	5	5
1881	0	1	1	1	2	6	18	22	37	30	22	16	11	4	1	6	3	1	1	1	6	7	7
1882	0	1	1	1	2	5	11	8	25	21	41	23	14	7	2	7	4	4	4	4	7	7	7
1883	0	0	2	0	3	3	13	18	33	30	22	15	5	2	2	4	5	3	3	4	2	5	5
1884	0	2	0	4	10	17	21	29	34	21	19	14	4	4	3	6	6	6	1	1	0	5	5
1885	1	1	2	6	15	21	26	25	32	18	13	11	5	4	3	4	3	3	3	1	4	4	4
1886	1	1	3	4	13	19	32	33	22	23	9	8	4	4	2	6	6	6	2	2	0	5	5
1887	1	1	2	9	15	21	36	25	22	17	7	12	6	2	3	3	3	3	1	4	1	5	5
1888	1	1	2	10	9	16	36	26	22	20	15	16	11	1	3	3	3	1	4	1	0	6	6
1889	1	1	4	7	13	24	27	35	13	18	13	11	5	7	2	3	3	2	4	1	2	5	5
1890	1	1	4	8	16	21	30	27	17	18	11	9	7	4	7	2	2	2	2	2	0	6	6
1891	1	4	5	7	16	17	30	26	23	19	13	11	7	4	4	4	4	2	2	1	0	5	5

extremely improbable that the mean variation will in any particular case be a close approximation of the net variation. As a matter of fact, however, there is no "net variation," as this term is generally understood. The reasons for this have been previously given in the treatment of the consumption standard, and they amount essentially to the important fact that we cannot treat goods which are consumed in different quantities as of invariable value. The attempt to do it is not only contrary to all recognized theories of value, but as a simple proposition of statistics it results in producing a number of formulæ or index numbers which are different, yet nevertheless have equally valid claims for selection. It might almost be laid down as a general proposition of logic where such a condition results from a course of deduction in the successive links of which no error can be discerned, that a mistake has been made in the original premises.

The foregoing constitutes what might be called the ultra theoretical case against the ordinary index number. In addition, however, the standards which treat ordinary commodities and labor as invariable in value, irrespective of the quantity in which they are consumed or purchased, are beset by the important practical difficulty that they represent the interests of a

limited class, either those of the consumers or those of the producers—and these classes do not coincide. There is a practical as well as a strong theoretical and historical necessity for some standard of deferred payments logically intermediate between the consumption and labor standards.

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## IRON AND STEEL IN ENGLAND AND AMERICA.

THE commercial, nay, the economic and political status of Great Britain, and the economic status of its working classes, is so entirely dependent on her manufactures, and the primary materials coal and iron, that the nervousness felt by its statesmen and people when anything arises on the horizon threatening the continuance of its dominating position, seems excusable.

Hundreds of millions of people could live in ease and comfort in America from the products of its soil. If all other nations should close their doors against us we could well maintain ourselves from our own resources. England's people would be exposed to starvation if by any contingency they were deprived of foreign food supplies, as she does not grow sufficient food to feed more than two-thirds of her present population. She can only pay for the constantly increasing foreign supplies by the labor of her industrial population. For this reason declining trade is an issue of much greater moment to her than such a contingency would be for us.

But were this her real condition we should be the last people to rejoice. It would affect the most responsive market we have for our surplus supplies of food stuffs, not to speak of other products, for which England is our best market. England's industrial position is therefore one worthy of careful study by Americans.

Let us see for a moment whether present conditions justify the serious apprehensions we see exhibited. England still holds undisputed sway in cotton manufacturing. Germany has made no material progress as an exporter of cotton fabrics in the last fifteen years. In 1882 exports in cotton textiles amounted to sixty-seven million marks (\$16,000,000); in 1897 they were seventy millions (\$16,700,000), and in 1900, a so-called boom year, ninety millions (\$21,420,000). America can only be

considered as a competitor in the coarser yarn numbers. Wherever finer counts are in demand, and this is the case in most of the cotton using countries, we have made little impression on the market.

India cannot prevent the products of British looms coming in undiminished quantities to her own shores. As a matter of fact one third of all the English exports of cotton fabrics go to India. Indian (Surat) cotton is not suitable for yarns finer than No. 24, and the chief trade of the world is in higher numbers. It is evident therefore that no menace to England's trade from that center is to be counted a possibility.

The Indian exports of cotton manufactures and yarns in 1899 amounted to ninety million rupees (\$29,000,000). The raw material of these manufactures grows at no appreciable distance from the factory. On the other hand, England shipped in the same year to India and eastern Asia £26,500,000 (\$129,000,000) in cotton yarns and manufactures, the raw material of which is carried several thousand miles to reach the factory.

American exports of cotton goods to China, India, Japan, and the Philippine Islands amounted to \$9,350,000 in 1900, *i. e.*, the time before the outbreak of the Chinese troubles, by which these cotton exports were reduced by about four million dollars. Germany's trade in cotton goods to these same countries in the same year amounted to 6,700,000 marks, or \$1,600,000.

England in 1900 reached the highest figures of the decade in exports of cotton manufactures. These were equaled only in 1890. The present year, with the average price of cotton lower by nearly two cents a pound than in 1900, shows considerable increase. The exports of cotton yarns and manufactures for the eight months ending August 31, 1900, were £47,000,000, while the same period of 1901 shows export values of £49,200,000. Still, at the very time of the publication of this most satisfactory trade report, we read in cablegrams from Manchester of an impending closing of Lancashire mills on account of American competition. In worsteds and woolens,

manufactures and yarns, the showing is less favorable, £15,848,000 being exported in 1900, against £13,468,000 in 1901.

But as we hear only of closing mills, reduction in wages, and general suffering from the woolen manufacturing districts of Germany, and as France can hardly be called a competitor in woollens, we must assume that the falling off is not due to foreign competition. The decline is, however, fully explained by the facts relating to wool prices. Wool commanding 13¾d. (27½ cents) in January 1900, and averaging about 11¼d. (22½ cents) for the eight months of 1900, did not exceed 7¾d. (15½ cents) during a similar period in 1901. Wool tops (combed wool) in January 1900, sold at £33 the pack (280 pounds), and in January 1901, at £19 10s. Other important English manufactured articles for personal use show considerable gain, the exports rising from £6,726,000 in 1900 to £7,164,000 in 1901. It is evident that the anxiety so frequently expressed by Englishmen is not justified by the international conditions represented in the trade reports of the various countries. It is not a little surprising that so little cognizance is taken of these, and so much of *ex parte* statements of individuals more or less well informed on international trade and manufacturing conditions.

The greatest concern, however, is expressed in reference to iron and steel production. Next to cotton manufacture, the products of this industry form the greatest of English exports. The formation of the United States Steel Corporation has added not a little to the uneasy feeling already existing, on account of German and American competition. What seems strange to an average observer is the readiness with which Englishmen accept the statements of our own ironmasters as to our ability to undersell England.

The proceedings before the Iron and Steel Institute of Great Britain last summer gave ample opportunity for observations of this nature. The gist of the opinions was that England was losing her trade because she had neglected making improvements and did not follow the American example of

combining, nor of locating manufacturing at points most advantageously situated for shipping purposes.<sup>1</sup> A cable from London the other day reported a statement made by Mr. Charles M. Schwab, president of the United States Steel Co., to Mr. Joseph Lawrence, member of parliament for Monmouthshire, to the effect that he could lay down steel billets at Liverpool at \$16.50, which the British ironmaster could not do at less than \$19. Basing my statement on knowledge gained on the spot in 1888, and barring later-day improvements, I presume to say that it would not be difficult for English steelmakers, under normal conditions, to meet American competition at the stated price, and even to stand ready for a squeeze.

Mr. Lawrence does not inquire into the ability of England to meet this competition, but at once accepts the statement and puts the blame on transportation cost at home. He says it costs more to transport a ton of steel by rail from Birmingham to Liverpool than from Pittsburg to New York, a distance four times greater. True as it may be that transportation charges by rail are excessively high in England, and that English roads transport to terminal points, where competition of lines is possible, and even to foreign inland points, at lower rates than they give to home shippers on their own lines, it must not be forgotten that the country is intersected by canals on which the heavy, bulky goods are usually carried. This mitigates the evil somewhat. I say somewhat. The railroads to a large measure control the canals.

I admit this is a great, a crying evil. The railroads have parceled out the country among themselves—and parliament stands guardian over the arrangement. In any other country this might prove of great injury to industries in which freight charges bear so heavy a proportion to value. But nature, knowing the character of her children, has put a saving clause into the arrangement by locating the most important iron and coal beds close to the seashore and placing the mouths of rivers at the same spot.

<sup>1</sup> See paper read by Mr. Garrett, of Cleveland, O., before the British Iron and Steel Institute.

The injury to the iron industries by high charges of transportation lines is therefore not so great as appears from the statements. The ironmasters have not been slow to avail themselves of their advantages. As early as fourteen years ago, when I visited inland places, formerly important centers of steel production, I found that many of the bloomeries and rolling mills, located there on account of ready coal supply and other advantages, had been removed to the mouth of the Tees or the Tyne, to Barrow-in-Furness on the coast between Lancashire and Cumberland. Those left in Birmingham do not try to compete with the Lancashire or the Yorkshire works, which have natural advantages not possessed by an inland place. The former produce forms of iron and steel which are used to a large extent in the local factories. South Staffordshire, of which Birmingham is the manufacturing center, produces a grade of iron which, in the advanced products of bar iron and steel, commands a higher price than Middlesbrough's products. While transportation of these from Birmingham may have to submit to railroad charges far in excess of American charges, yet this cannot affect the grades that would come directly into competition with American makes, the only ones to which Mr. Schwab can have reference.

The price of goods is determined by the cost of labor and the profits. The latter have been extraordinarily high in iron and steel in England, no less than in Germany and in America. The last few years were years of high carnival in prices. But it is not safe to speculate on abnormal conditions, such as have existed since 1899. History is wont to repeat itself in the iron industry in a cycle of about ten years. The prosperous years of 1869 to 1873 were followed by the depression of 1874 to 1878. Then, 1879 to 1883, prosperous years; 1884 to 1888, years of depression. After this the boom of 1889, culminating in 1893, was followed by the hard years of 1894 to 1898, which in turn were relieved by the price and trade advance of 1899. The boom will run out its allotted time, perhaps, and then—well, we will not lift the veil the gods have kindly cast over the future.

Prices keep step with trade conditions. Not to go back farther than fifteen years, let me state: *Basic pig iron* sold at Middlesbrough in 1886 and 1887 as low as 26s. a ton (\$6.33); it sold in December, 1889, at 64s. (\$15.57). In 1895 and 1896 it was again as low as 32s. (\$7.79), but commanded 65s. (\$15.82) in 1900. *Steel rails* sold at £3.17.6 (\$18.85) in 1886-7, but were around £7 in 1889-90. The same commodity was down as low as £3.12.6 (\$17.64) in 1895-6, but rose to £7.15 (\$37.72) in the fall of 1900, when our own price was under \$25. *Coal*, of course, shows the same variations in price. Times of depression and of prosperity bring to the surface remarkable elements of adaptation in the character of the Englishman. Forty-six million tons of coal shipped in 1900 netted him 38 million pounds, an average price of 16s. 6d. per ton. But he forbore to take more than 8s. 6d. per ton for the 37 million tons he shipped abroad in 1897, when trade was poor. Nothing warrants the assumption that John Bull will not show the same noble spirit of forbearance when the scales again tip downward.

We hear much of the increased cost of labor while these anomalous prices rule. But for "labor" in the surplus price we may read "profits." At the time when improvements in the economy of production were not yet considered a necessary evil that might have to be reckoned with, the labor cost was a pretty low one, judged even by our own standard. In the spring of 1890 I visited the Brimbo Iron and Steel Works in Wrexham, North Wales, near Liverpool, to ascertain the cost of making open-hearth steel. The total labor cost, based on a month's working, was \$1.38. This was in the midst of the boom times. Two advances of 10 per cent. each had been previously granted. In 1887 the labor cost in steel works in Middlesbrough was 4s. 4d. (\$1.05), not a very material difference. Our own cost in 1888 of making open hearth steel in Pittsburg was \$1.85, in furnaces with latest improvements, and as high as \$2.38 in works of older construction. If we had succeeded in reducing our labor cost by 50 per cent. in the interval we should not be able to produce steel at much less than England did then.

We have lowered the labor-cost considerably. But it must always be remembered that it has been very low in England all the time, and that England has been asleep with only one eye closed. The spirit of the times has not passed entirely unobserved. The labor-cost (inclusive of office and incidental labor) of making basic pig-iron in 1887 I found to be 4s. (97 cents). Carroll D. Wright, in his *Report on the Cost of Production of Iron and Steel*, of 1890, puts it as low as 74 cents. But the report places basic and Bessemer iron on an equal basis, which is not in line with generally known facts as to the relative quantities handled per ton of pig-iron.

At present, under normal conditions, iron can be made from Cleveland ore at 2s. 6d. (61 cents), as is reported by Mr. Kirchhoff, the editor of the *Iron Age*, who visited the field in 1900. This is on the basis of 34s. as the selling price of No. 3 iron. Every shilling advance in the selling price, under their sliding scale, brings an advance of  $1\frac{1}{4}$  per cent. in wages. The selling price being 45s. at present, would add 14 per cent. to labor and bring it up to about 70 cents. When the price was 64s. (\$15.57) a year ago, the increase would have been  $37\frac{1}{2}$  per cent., *i. e.*, a rise of 30s. (\$7.30) in the selling price, and of 11d. (22 cents) in the labor-cost; making the latter 83 cents. Allowance, of course, has to be made for labor advances in the underlying materials.

Similar arrangements exist in the coal industry.<sup>1</sup> In a num-

<sup>1</sup>Of course, where the furnaces are supplied by outside sources with fuel and ore, the price differences in these commodities have to be added, and they materially reduce the profit returns. But as the ironmakers usually are owners of coal mines, coke ovens and ore beds we have to calculate the labor cost of iron, from the material in the earth to the finished iron, on this basis of ownership. Starting on the base price of labor and pig-iron to the highest point the relations of labor cost to price stand as follows, according to sliding scale;

		Labor cost in ton of pig-iron when iron sells at 34s.		and at 64s.	
		s.	d.	s.	d.
a)	Furnace labor	-	2	6	3
b)	Mining $3\frac{1}{2}$ tons ore	-	@ $9\frac{1}{2}$ d.	2	7
	Additional labor	-	@ $9\frac{1}{2}$ d.	2	7
c)	Labor in producing $1\frac{1}{2}$ tons of coal	-	@ 2s. 3d.	4	0
d)	Coking $21\frac{1}{2}$ cwt. coke	-	@ 1s. 6d.	1	8
e)	Limestone $\frac{1}{2}$ ton	-	@ 1s. 8d.	1	0
Total labor in ton of basic pig-iron		14	4	21	4
Difference in labor cost in pig-iron from materials in the earth		-	-	-	70
Difference in selling price		-	-	-	30

ber of mines from which I collected accounts in 1887 the total cost of labor varied between 62 and 83 cents. This is inclusive of labor outside the mine. The sliding scale provides that for every advance of 2d. in the selling price an advance of  $1\frac{1}{4}$  per cent. in the wages per ton should be given to the miner. Mr. Kirchoff states that in August, 1900, the advance over the wage basis agreed upon in 1879 was 55 per cent. The figures of the above statement, which are borne out by general facts, then show that labor in time of depression costs, on an average, 73 cents the ton, and has risen in the height of boom times 40 cents, *i. e.*, to \$1.13 the ton.

This is not an inconsiderable addition to wages, especially when we consider that in dull times the miner seldom averages more than four days a week, and works full time, Saint Monday permitting in the flush times. But in connection with this we must remember that the advances in price amount here to 10s. the ton.

These statements may serve as a key to an understanding of the situation when we hear of the increased cost of production due to advances in labor cost. This increase of cost is usually brought forward as an impediment to price reduction, urged on ironmasters as a means to holding the "waning trade of England."

In the matter of fuel, England is well provided. Good furnace coke can be laid down at Middlesbrough furnaces at 10s. 6d. (\$2.55) the ton. If higher prices are quoted, it must be remembered that they affect to a very small extent the iron-maker. The works, as a rule, own mines, coke-ovens, and ore-beds. Iron producers cannot easily be "frozen out." Pig-iron from native basic ores, according to well authenticated facts, is producible in the Cleveland (England) district at the following figures:

	s.	d.
3 $\frac{1}{4}$ tons of ore at 3s. 5d. =	11	1
Coke - - - -	10	0
Limestone - - -	2	0
Labor - - - -	2	6
Incidentals and supplies	1	0
Total - - - -	26s. 7d.	= \$6.47.



The case is not altogether hopeless for England, even when our southern iron is considered. This could be made, and was made in 1898, at about \$5.75. But as the southern furnaces are situated at a considerable distance from tide water, the British iron is the cheaper of the two at the respective ocean shipping places. Nor is the case of hematite iron one to justify exuberant expectations. True, the native ores found in Cumberland and North Lancashire are not very abundant. The main supply comes from Spain. Swedish and Norwegian ores have been supplementing these of late. Spanish (Bilbao) ore, of 50 per cent. iron, has been 13s. 6d., laid down at the furnace at the mouth of the Tees. At this price, the cost of the ore put on board ship is 7s. (\$1.70) and freight, 6s. 6d. (\$1.58). Late quotations from Middlesbrough (England), the center of the Cleveland iron district, were 14s. 6d., and at the time of writing (October), quotations have again advanced, under improved demand, to 16s. Here, too, demand fixes prices.

The Spanish methods of mining are primitive. Improvements to bring up the standard of mining efficiency to the one ruling here are within the reach of probability, and would insure a full supply for all needs at the lower price. The cost would stand as follows:

Two tons (50 per cent. ore) at 13s. 6d.	=	<sup>s</sup> 27	<sup>d</sup> 0.
Coke	- - - - -	-	10 0.
Limestone	- - - - -	-	1 6.
Labor	- - - - -	-	2 6.
Incidentals and supplies	- - -	-	1 0.
<hr/>			
42s. od. = \$10.22			

It has never been claimed that Bessemer iron, from the Ohio valley or from Pittsburg, could be laid down at tide water at this price. No allowance for profits or capital charges is made in these two statements. These do not play an active part in English iron and steel in times of depression. They are not considered in their prices by our steel magnates when they speak of England as a dumping field for their surplus product.

An opportunity was offered to American iron and steel producers to test the English markets as receiving centers for their surplus products during a great part of the last twelvemonth. From the month of August, preceding the presidential election till after the formation of the great trust, iron and steel prices had fallen considerably towards the point from which they had started on their upward course at the beginning of 1899. On the other hand, English prices during that whole period were up to the highest level ever reached in recent times. Southern iron No. 2, at Birmingham, Ala., was \$11. Middlesbrough (England) iron No. 3 was 65s. 6d. (\$15.94) in November, and 63s. (\$15.33) in December.

American steel rails sold between \$24 and \$26, while English rails reached as high as £7.15 (\$37.72) in September, in November were at £6.15 (\$32.85), and in January, 1901, commanded £6.10 (\$31.63).

A lack of shipping facilities may be quoted in explanation. Still it is well known that cotton steamers in the South and grain vessels in the northern harbors were not wanting at the time. At least we had no difficulty in getting all the berth room required for these commodities on ships flying the British flag. Pig-iron is gladly taken on board by masters of vessels at concessions and here was a good opportunity for offering a premium even. For steel products the margin was much greater than for iron, so that the plea of lack of transportation facilities cannot well be entertained.

The difficulties in the way of disposing of surplus products are not exhausted by the price question alone. But to treat them here would require a broader margin of space than is within the lines I have set for the present discussion.

America has made great improvements in the economy of producing iron and steel. The labor cost in Bessemer pig-iron in Pittsburg in 1887 was \$1.40, and in Bethlehem \$1.25 a ton. I am informed that it is not over 70 cents now. Wages have not been reduced. But wheelbarrowing the materials to the lift and hoisting them to the cupola has been done away with, and

automatic machinery for loading and emptying the trucks, and inclined-plane railroading to the cupola, have been substituted. Substituting the brain for muscle is the only means by which we are able to hold a commanding position. But with all our forging ahead, we only arrive at the position where England has been all the time. It is well to consider all these points, including the proximity of the iron and coal beds to the shipping points of iron and steel, and not to forget that we have to transport our raw materials to the assembling point over hundreds of miles, and then carry the finished product another five hundred miles to tide water, before we arrive at the point where England is placed by natural advantages.

The "ocean transportation arrangements" contemplated by the steel trust, by which, as Mr. Schwab said, the price would be still further reduced, do not appear very serious from the point of view gained by a consideration of these facts. The trust may continue buying up British steamship lines to the end of its available resources without great injury to any British interest, least of all to England's ocean transportation interest.

The rapidity with which she is filling the vacuum in her merchant fleet, caused by the transfer to our magnates of finance of craft more or less antiquated, is remarkable.

The steamers of ten years ago show rather poorly, both in speed and economy of handling, when compared with the products of the shipyards of today. British shipyards turn out in two months more tonnage than was contained in the fleet that was lately transferred to Mr. Morgan. For spoliation of this kind England would willingly work her shipyards night and day. In the eight months ending August 31, 1900, the steel vessels sold to foreigners were valued at £4,843,000 (\$24,000,000). The same period in 1901 shows £6,126,000 (\$30,000,000). Englishmen interested in these industries will not consider it a very ill wind if the present rate of "decline" will keep up in the future.

Germany, whose prosperity protectionists the world over were happy to extol in the same breath heralding the decline in

British commerce, is suffering from depression, which all the reports describe as deep-seated, general, and growing. Foreign markets are non-responsive, and home-demand, with poorly paid labor, is not able to come forward to succor the suffering industries. In the face of a dreaded winter, and in a year of poor crops, the imperial government, instead of alleviating suffering by freeing food stuffs from tax burdens, proposes to raise duties on them to double the former onerous amount. Free traders will see a satisfactory connection of untaxed necessities of life and the undiminished trade prosperity of the only commercial nation, which has rid itself entirely of the system of spoliation of the poor, covered by the guileless name of "protective tariff."

I am not prepared to say that it is on this account that present trade figures of England show no abatement, while those of Germany are declining. Profits, as appears from prices, are still so high that considerably lower prices could be supported without great loss to either of the competitors. But that her superiority as a manufacturing nation is unassailable by nations who depress the standard of living of their working classes by protective legislation, is a proposition which needs no expounding. The trade figures show the enormous strength of Great Britain, and suggest that it is well not to become too sanguine when we read the statements concerning our great opportunities consequent on England's decline, which now fill the prints on both sides of the Atlantic.

The declines which are noticeable in English exports of iron and steel are in the coarser products. This is entirely due to the waning consuming capacity of manufacturing countries which have been England's chief customers in pig-iron and steel, notably Germany, France, and Holland. The exports in iron and steel in the eight months under review were, in 1900, £22,411,000, and, in 1901, £16,927,000, a falling off of £5,500,000. This is made up of £2,600,000 in pig-iron, £2,900,000 in bar and cast iron and raw steel. In steel rails £2,500,000 was exported, against £2,033,000 in 1900, an increase of 20 per cent.

Prices brought back to the basis of 1900 would show considerable increase in export value in all items outside of the raw forms of iron and steel. The figures of 1900 have been maintained for the export of all kinds of machinery except those for textile manufactures. This means that in all non-manufacturing countries the demand for English mill work and machinery has remained unabated.

The gigantic combination that has lately been formed in the United States is considered a menace by England. The statement made by Mr. Charles M. Schwab, before the Industrial Commission, indicates the policy the trust intends to pursue in regard to foreign trade. He stated; "When we have as much as we have today we are not anxious to sell at low foreign prices, but when our mills are not running steadily we will take anything at any price, even if there is some loss in so doing, in order to keep running." The speech lacks nothing in plainness. Still, intention is one thing and execution quite another. So far as England's home trade and European trade is concerned, it will be found that the threatened inroad will meet with difficulties.

The test of strength is the low-price basis of the lean years and not the high-price basis of a boom period. "When our mills are not running steadily," it may be safe to conclude that the time of reaction has set in, the periodic recurrence of which has been referred to above, and which does not affect English trade any less than it affects ours. England will make a virtue of necessity and come back to hard-time prices, just as she has done before. It has been shown at what prices England can produce iron and steel. To meet them at English ports, taking Pittsburg as the American starting point (since the trust's manufacturing centers are not located nearer to seaport than this inland town), would involve freight and other charges for rail and ocean transportation of not less than from four to five dollars a ton. Bessemer iron would have to be delivered at \$6 to \$7 on board cars at Pittsburg, steel rails at \$12 to \$13, and billets at \$10 to \$11, in order to meet English prices at the shipping or receiving dock in England. The great combinations,

known under the name of trusts, are advertised and commented on as denoting an economic and industrial advance. In the same breath we hear the old system of industrial management and open competition decried as wasteful and unable to satisfy the best interests of the people under the modern aspects of industrial development. I will not deny that there is economy in dismantling old works whose output has become obsolete, or which are unprofitably situated, and erecting in their stead new works supplied with all the latest improvements and scientific appliances.

But this does not require the presence of a trust. The process of weeding out the decrepit has been most vigorously conducted under the aegis of competitive management. "Destructive competition," as a consequence of this process of rejuvenation, was the forceful argument of the promotor organizing the trust. The road of progress is strewn with the relics of competitive war. They are the tombstones of obsolete methods and the milestones of general progress. I have intimated above the progress that has been made in blast furnace construction. Immense sums have been spent in rebuilding American equipment. The new furnaces are of enormous capacity. The Lorain Company erected two stacks a short time ago of 350,000 tons capacity, which is 3,350 tons a week for each furnace. This is six to eight times the capacity under the practice in general use but a short while ago. But size alone is not necessarily conducive to cheap production. In 1887 I was permitted to examine iron works of America and England. I found furnaces in Bethlehem, Pa., which produced bessemer iron at a labor cost of \$1.25 a ton. The furnace had all the then introduced improvements. But the capacity of the largest of the six furnaces<sup>1</sup> run by the company was only 600 tons. Newly erected furnaces near Pittsburg, which I visited at the same time, had a capacity of 1,400 tons a week. Their labor

<sup>1</sup> They were Siemens furnaces, using the waste gases for generating steam for their blowing engines. Their labor cost, as stated, was \$1.25 a ton, while the cost of production of the old fashioned furnaces without these appliances was from \$1.50 to \$2 a ton.

cost was \$1.40. General wages in Bethlehem were \$1.25 a day, and in the Pittsburg works \$1.40. This would bring the cost to the same level of figures on the same rate of day wages.

English furnaces, and I examined the workings of quite a number of them in and around Middlesbrough and in Staffordshire, did not exceed in size that given for Bethlehem. The cost of producing Bessemer iron, where a smaller proportion of tonnage of material is handled than in basic iron on account of the richer character of the ores, was 72 cents, as stated before. English ironmasters then did not consider our practice of large output per furnace as worthy of imitation by them. The large furnace with our high blast requires re-lining every two to three years. Aside from the expense, it necessitates stopping one furnace for several months each year, where two furnaces are employed, while the entire plant is unproductive for a time every second or third year where only one furnace is standing.

One of my English informants, an ironmaster of thirty years experience, assured me that he had no re-lining done to any of his six furnaces for a space of sixteen years.

I may add here incidentally that our cost of iron-making is increased in northern localities somewhat on account of the expense of storing the materials in the furnace yards and of rehandling them, due to weather conditions in winter, closed lake navigation, and other interruptions in transportation. England's open winters permit direct handling of materials all the time.

In steel-making, likewise, it is not found that the great capitalizations lead to reductions in cost of production such as is claimed for them. The cost in the older English works, untouched by late improvements as they are, can, as has been shown, stand comparison with our cost from works of latest construction.

The great size and output of American works may be very advantageous from our point of view. But it does not follow that our practices introduced in England or Germany would meet with equal success. The industries dependent on iron and steel

are far more diversified than ours. We work for home demand, generally very uniform, and sell the surplus products wherever we can find trade for them. The mills in Europe are used to accommodating themselves to the most varied demands of a trade that is scattered over the entire earth. This necessarily affects the steel maker no less than the demand for iron and dependent materials.

But it would be a mistake to suppose that England has not been in possession of all the advantages that can be claimed as legitimately arising from combinations, such as place control of all the underlying industries into the hands of the final producer. The difference between us and England is this, that their combinations are the healthful ones the growth of efforts of individuals for industrial ends, while ours in their latest developments are necessarily coupled to financial ends to which the industrial ones stand in a secondary position. The substitution of corporate management for individual effort may prove its disintegrating influence in times of reaction, when new vigor may come to play its part in rival enterprises.

To what extent the union of all the different parts of the industry under one control can be made possible without the assistance of the trust promoter, is shown by Krupp in Essen, and no less by a number of English concerns.

One of the latest American observers visiting England, the editor of the *Iron Age*, deserves to be quoted in corroboration of this statement as well as of what has been said in preceding pages:

If that be true [the production of Cleveland iron at 28s. a ton] then some of our producing districts, not excluding the most favorably located, do not possess extraordinary advantages. "Spread eagles" in industrial matters is likely to cost too dear to be encouraged, and it is far better that the fact be known that cheap iron is made elsewhere outside of the lower lake district, Pittsburg, the Ohio valley, or Alabama, and that the Cleveland district must be numbered with others in England, and with the Minette district<sup>1</sup> on the Continent, as a leading competitive locality, in the world's

<sup>1</sup> This ore district comprises parts of Luxemburg, parts of Lorraine, and adjacent parts of France.



open market. The Cleveland district and the rolling mills and steel works of the New Castle section make a very great variety of products. Conspicuous among them are rails, plates, structural materials, wire, and bars. In fact some of the great companies build ships, supplying the greater part of the material from the ore up.

The trust possesses no advantages that have not previously been employed by individuals. The important point is this: At what cost can the unit of account in production, the ton or pound be laid down at the mill door and at competing points, and not the number of tons or pounds produced or the number of furnaces and steel converters run under one management. The writer inclines to the belief that the facts here stated justify the assumption that the large combination directed by non-responsible hands will not be as effective in the end of reaching most economic production as was the old system of free competition and individual, responsible leadership.

The Carnegie works have of late become the cheapest producers of iron and steel in the northern part of the United States. Like the English and German works cited, they owe their position to the master mind of the chief owner and director. Always in advance in the adoption of the most recent approved inventions and discoveries, they were able, from the gains of their own works, to add annually to their productive power, so that after the lapse of ten years they had become the arbiter of the iron and steel industry of America. Their Homestead works alone, in 1890, had a capacity of 295,000 tons; in 1898 they had grown to an annual capacity of 2,260,000 tons.<sup>1</sup> The question of submission or destruction has its terrors if uttered by voices that have the support of means, of which these colossal figures give an idea. We can understand the financial necessity which urged the present members to form the trust combination, but cannot at all understand that the consumer is deriving the least benefit from combinations, even if they were not organized with the chief object in view to uphold prices, and to prevent competition.

<sup>1</sup> EDWARD SHERWOOD MEADE, *Quarterly Journal of Economics*, August 1901.

We have not yet become cognizant of any facts that nullify the recognized advantages to the community of unhindered competition. After we have gone through our present debauch and paid the penalty, we shall come back to the old views, expressed a hundred years ago and more, but which will not grow obsolete so long as man seeks his fellow man to exchange commodities.

Competition is the supreme arbiter of price, the legitimate and equitable regulator, which governs the market with justice and moderation; she puts limits to all excessive pretensions; she restrains greediness and avarice and constrains them to content themselves with reasonable profits; she does not protect or oppress, she does not hate and does not love, she does not give nor take away; always impartial she views with the same eye all the conditions, and distributes to everybody in the sum total of public prosperity the part that is legitimately due to him.<sup>2</sup>

Could the same be said of the trust? Its aims and motives are the opposite, and opposite terms from those here employed to describe the benefits arising to mankind from unhindered competition would furnish a portrait of the trust that would be recognizable by everyone.

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<sup>2</sup>*Il colbertismo, ossia della libert  del commercio dei prodotti della terra.* Pamphlet by Count MENGOTTI, Florence, 1792; introduced by CIBRARIO, *Economie Politique du Moyen Age*; translated into French by M. Wolowski.

## VALUE IN ITS RELATION TO INTEREST.

### I.

THE explanation of interest has been sought in the increase of aggregate value<sup>1</sup> rather than in the increase of commodities or utilities. For instance, Böhm-Bawerk: ". . . what people look to in economic life is the value of goods . . . . To obtain the basis for the principal part of our work — the explanation of interest — we require to go into the theory of value."<sup>2</sup> Hugo Bilgram says: ". . . it will be necessary to give a brief outline of the theory of value, in which Professor Böhm-Bawerk rightly seeks the law of interest."<sup>3</sup> Let us see whether a simple illustration will not identify the increase of commodities as the real fountain of interest.

If we accept, in this discussion, the ordinary conception of value, namely price,<sup>4</sup> it can be shown that an increase of aggregate value in the individual product is by no means indispensable to a surplus that may be appropriated to interest. An increase of output, although attended with a decrease in aggregate value, will provide for the payment of interest. To illustrate, let us consider four types of industries, A, B, C, D, all operated without capital, and suppose the yearly product of

<sup>1</sup> As appropriate in a discussion of the interest question, "value" in this paper is confined to the general sense of exchange value, or what Böhm-Bawerk describes, preliminary to his formal treatment of interest, as "objective exchange value." The exchange relation of commodities to the money standard as well as to other commodities is meant to be covered in this extended sense of the term.

<sup>2</sup> *Positive Theory of Capital*, p. 125.

<sup>3</sup> *Quarterly Journal of Economics*, January 1892, p. 191.

<sup>4</sup> Capital is borrowed in terms of money, and the returns must be made in the same standard, both principal and interest. It matters not whether money appreciates or depreciates during the term of the loan. It is the nominal sum, and in addition the stipulated interest, say 5 per cent., that must be paid. If the standard appreciates, the 5 per cent. is nevertheless exacted. If depreciation takes place, no more than the stipulated rate of interest will be paid. It is easy to see, therefore, that questions of interest, not of the philosophy of interest, but of the amount of interest in any specific case, find expression in terms of money value.

each commodity is one thousand units.<sup>1</sup> Suppose, for simplicity, that this yearly product has the value of \$1000 in each case, also that we have but four operatives to deal with, one for each industry, and that the aggregate product is consumed yearly, the commodities exchanging against one another, unit for unit; each man consuming 250 units each of the four types of commodities, leaving no accumulation for capital. Eventually one of the men conceives the notion that \$1000 of capital will enable him to increase his output manyfold. He borrows the \$1000, or what is equivalent to 1000 A, and let us suppose as the result at the end of the year that his product has been 4000 instead of 1000 A. Böhm-Bawerk<sup>2</sup> emphasizes the claim that so far as the productive relation goes it cannot be shown that the increase of value (money value, of course), due to the employment of capital, is in excess of the value of the capital destroyed in the process, and he expects it to be taken for granted that an excess of this value is indispensable to interest. In the case we are considering the aim will be to show that the increase of *commodities*, independently of increase of total *value*, provides for interest.

Let us suppose, then, that the 4000 A has the value of \$2000. This will allow for 2000 A to replace the \$1000 capital borrowed, and leave 2000 A to the borrower, which share, on the basis of 4000 A at \$2000, has a value equal to that of his former product of 1000 A.

At first sight, it appears that interest is entirely excluded by this result; but let us examine the situation further. Suppose the capitalist is a consumer of A, B, C, D, and that he elects to take the 2000 A in lieu of the value \$1000. At the present value of A, he must give 1500 units of that commodity for 250 each of B, C, D, that is, 2 for 1 of each of the latter. This leaves him 500 A, whereas formerly, when 1000 A had the value of \$1000, he could have retained but 250 A. To be sure, the 500 A, expressed in terms of the standard, has a value equal

<sup>1</sup> That is to say, without borrowed capital, and with only primitive instruments, simple tools, too insignificant to figure in a problem of interest.

<sup>2</sup> *Positive Theory of Capital*, p. 122.

only to the former value of 250 A; but, as a consumer, he has a surplus of 250 A, which may be considered as interest indeed, although it does not figure as *nominal* interest.

So far, we have not arrived at interest in the ordinary sense, that is, a surplus of money value to the lender; but the search is not exhausted. The borrower also is possessed of 2000 A. To be as well off as in former years, he must have 250 of each of the four types of commodity. As in the case of the capitalist, 1500 A will secure him 250 each of B, C, D, leaving him 500 A, or a surplus of 250 A. This surplus may be applied to the payment of interest, showing that interest may be paid regardless of any excess of value expressed in terms of money. Indeed, a slight decline in this aggregate value is not incompatible with the payment of interest, while still leaving the borrower as well off as formerly.

Suppose that a unit of A has declined to  $\frac{10}{11}$  its former value, or to a little less than  $\frac{1}{11}$ . On this supposition it will take 2100 A to replace the \$1000 borrowed, since  $\frac{10}{11}$  of 2100 = 1000. This leaves to the borrower 1900 A, which has a value of  $\frac{10}{11}$  of \$1900, or about \$905, showing a decrease in aggregate value of \$95. How does this affect the condition of the borrower? As before, he exchanges A for B, C, D, but this time at the rate of 21 for 10. For 250 each of B, C, D, at this rate, it will take 1575 A, since  $\frac{10}{11}$  of 1575 = 750. This leaves him the difference between 1900 A and 1575 A, or 325 A, showing a surplus of 75 A, which surplus may be applied to interest.<sup>6</sup>

<sup>6</sup> In this example, A's product could show a decline in value of \$133.33 $\frac{1}{3}$  before reaching the point at which interest must cease, or the borrower suffer a disadvantage. At this point the unit money value of the commodity is  $\frac{1}{15}$  its former value. On this supposition 2142 $\frac{2}{3}$  A will restore the borrowed capital, since  $\frac{1}{15}$  of 2142 $\frac{2}{3}$  = 1000. 1607 $\frac{1}{3}$  A will secure 250 each of B, C, D, as  $\frac{1}{15}$  of 1607 $\frac{1}{3}$  = 750. Finally A will have left 4000 - (2142 $\frac{2}{3}$  + 1607 $\frac{1}{3}$ ), or 250 of his own commodity. This ratio,  $\frac{1}{15}$ , is obtained as follows:

First deduct 250, to be retained by A, from 4000 A, and the remainder, 3750 A, must make good the borrowed capital and purchase 250 units each of B, C, D. These items have a value equal to \$1750. If we let  $x$  = the ratio sought, 3750  $x$  = \$1750, or  $x$  =  $\frac{1}{15}$ .

Even at this decline of total value, amounting to \$133.33 $\frac{1}{3}$ , the community, including the capitalist, is better off than before, since the latter commands a surplus of 285 $\frac{5}{6}$  A, and B, C, D each has the same surplus of A, owing to the rate of exchange of A against B, C, D, 7 to 15.

The example proves that increase of commodities, rather than increase of aggregate money value must account for interest.

It is proposed now to show that increase of aggregate value, in its true significance, must normally accompany increase of commodities, or utilities, so that increase of the former is tantamount to affirming increase of the latter; and that while to attribute interest to the increase of value, in this sense, is justifiable, it is more logical to go at once to the foundation of both value and interest, namely, increase of utilities, for the principle we are seeking.

In the example cited, suppose that A had been the standard of value, what would the effect have been on aggregate values? Let the case stand as before, with regard to the relative unit values of the various commodities. A being the standard, the values or prices, of B, C, D would have doubled, making an increase of total value in terms of A, of 100 per cent. Why should not A be taken as the standard as well as a piece of coin? If, under the circumstances B, C, or D had been the standard, the case would have stood as originally, when money was used as the standard, since B, C, and D, remained stationary, expressed in terms of coin. But suppose B, C, and D had resorted to capital with the same result as A. The outcome would have been no increase of aggregate value, measured in the usual standard of money, but vast increase in real welfare and in possibilities of interest.

The suggestion that A, B, C, or D might have been taken as the standard opens the way to the determination of values on the basis of a standard, that automatically and insensibly averages the relative changes of the various important commodities, thus affording a trustworthy basis for a stable scale of values. This is the multiple standard.

Take A, B, C, D as types of important commodities. At the beginning of our inquiry, we will suppose them equally important, and for the sake of simplicity we will suppose the output of each commodity for a given period 1000 units. The standard of value shall be a complex containing  $\frac{1}{4}$  of a unit of

each. Call this composite, or multiple, unit M. Then 1000 A=1000 M. B, C, D each has the same value, so that the total product of A, B, C, D, for the given period, equals in value 4000 M. Suppose now that the output of A, by reason of increased efficiency or industry, rises to 3000 units for the given period, what must be the result as to the aggregate value of the four commodities? The standard of value is the multiple unit, containing  $\frac{1}{4}$  of a unit of each commodity. Evidently, 1000 units of each commodity, as before, will furnish 4000 units of the standard. Hence the value of these 4000 units, 1000 of each commodity, is 4000 M. There is a surplus of 2000 A. This surplus must have a value, the measure of which, of course, depends on the relative change between A and the remaining commodities. If A declines in relative value in the same ratio as its increase in product, the 2000 A surplus is equal in value to  $\frac{1}{3}$  of 2000 of either B, C, or D. But a decline to  $\frac{1}{3}$  the value of B, C, or D does not express the decline as referred to the standard. However, this relation affords the basis for computing the real decline. The constituents of the standard are in relative value,  $\frac{1}{3}$ , 1, 1, 1, total,  $\frac{4}{3}$ . Dividing by 4 gives  $\frac{1}{3}$  or  $\frac{1}{4}$ , to express the relation of the standard to three of the four constituents.  $\frac{1}{3}$ , 1, 1, 1, divided successively by  $\frac{1}{4}$  give the new unit values of A, B, C, D. That is, the value of A is  $\frac{1}{3} \div \frac{1}{4} = \frac{4}{3}$ . B, C, D are each in value,  $1 \div \frac{1}{4} = 4$ ;  $\frac{4}{3}$  is  $\frac{1}{3}$  of 4, which gives the correct relation between A and the remaining commodities.  $\frac{4}{3}$ , instead of  $\frac{1}{3}$ , is the real unit value of A. This value  $\frac{4}{3}$ , applied to the 2000 surplus product of A, gives the total excess value, 800 M. This excess value may be verified as follows:

3000 A.	-	-	-	-	-	@ $\frac{4}{3}$ M=1200 M
3000 B, C, D (1000 of each)	-	-	-	-	-	@ 4 M=3600 M
						<hr/>
Total	-	-	-	-	-	4800 M
Value of former product	-	-	-	-	-	<hr/> 4000 M
Showing increase in value of	-	-	-	-	-	800 M

It will be noticed above that the total for each of B, C, D, 1200 M ( $3600 \div 3$ ) is the same as that for A. This is as it

should be, since the ratio of increase in quantity, 3000 to 1000 for A is just offset by its ratio of decline in unit value, compared with B, C, or D,  $\frac{1}{3}$ .

An obvious criticism of the above exhibit is the apparent change in the value of the standard from 1 to  $\frac{5}{8}$ . This change is apparent only. A form of presentation could have been made that would *apparently* show an advance instead of a decline. For instance, express the relation of the new unit values of A, B, C, D by the scale 1, 3, 3, 3, instead of  $\frac{1}{3}$ , 1, 1, 1.  $1+3+3+3=10$ ;  $10 \div 4 = \frac{5}{2}$  or  $\frac{5}{2}$ .  $\frac{5}{2}$  will now be the apparent value of the standard. Dividing 1, 3, 3, 3, successively by  $\frac{5}{2}$  gives, as before,  $\frac{2}{5}$ ,  $\frac{6}{5}$ ,  $\frac{6}{5}$ ,  $\frac{6}{5}$ , as the new unit values of A, B, C, D. Neither  $\frac{5}{2}$  nor  $\frac{5}{2}$  should be taken as the value of the standard.  $\frac{5}{2}$  simply expresses the relation of the standard to the commodities B, C, D, the latter being represented by 1. Likewise,  $\frac{5}{2}$  will be its relation to A, if the latter be supposed to remain constant at 1. The instructive view is to regard the value of the standard constant at 1. Then the unit values of B, C, D will show a slight increase as computed above, while the unit value of A will show a considerable decline. In this view the value of the standard is 1, and the values of A, B, C, D, respectively, are  $\frac{2}{5}$ ,  $\frac{6}{5}$ ,  $\frac{6}{5}$ ,  $\frac{6}{5}$ . In truth, the value of the standard must remain at 1 from the very fact that it is the standard. All values must be adjusted to the scale of the standard.

We have shown that an increase of commodities involves an increase of aggregate value for the totality of commodities, on the basis of the multiple standard. This excess of value is due entirely to the excess of commodities, and the amount of this excess value depends altogether on the relative change of unit value in the commodity showing the excess of product. This does not mean that the increased product, A, standing by itself, surpasses the former product in value. In extraordinary cases, the value of a product may be entirely annihilated. In this extreme case, the aggregate value of all products shows neither decline nor increase. It does not decline, since the quantity, 1000 units of each of A, B, C, D, provides for the 4000 units, the same



number as formerly, of the standard M. It does not increase, since the surplus product 2000 A, by hypothesis has no value.

The greater the decline in value of any specific commodity that retains its utility, the better for the community as a whole, since the abundance of utilities is the *desideratum*. It will be interesting to note at what point in the decline, the maker of that product passes from a condition of advantage to one of disadvantage. We saw, in the case of a money standard, that the value of a commodity could suffer a ratio of decline greater than the ratio of increase of product, without jeopardizing the welfare of the maker. This will not hold in the case of the multiple standard. Equality of these ratios just maintains his condition, without favor or prejudice. In the example cited, when the product of A rises from 1000 to 3000, and the unit value declines to  $\frac{1}{3}$ , as compared with the standard, we have for the value of the total product, 3000 A @  $\frac{1}{3}$  M = 1000 M, and 1000 M contains just 250 each of A, B, C, D. This result corroborates the claim that the multiple standard correctly differentiates the values of commodities, rather than the single standard.

The relations deduced afford the basis for computing the ratio of decline in value of A to the remaining commodities, B, C, D, necessary to offset the increase in product. If A exhibits a threefold product, while that of B, C, D remains the same, we have seen that a decline to  $\frac{1}{3}$  its former value, on the part of A, compared with M, the multiple standard, just maintains the aggregate value of the product. But the values of B, C, D, as compared with the standard, will advance meanwhile from 1 to  $\frac{1}{3}$ .<sup>1</sup> Hence the decline of A to  $\frac{1}{3}$ , compared with the standard, which is 1, is equivalent to a decline to  $\frac{2}{11}$ , as compared with a commodity which stands at  $\frac{1}{3}$  since  $\frac{1}{3}$  of  $\frac{1}{3}$  =  $\frac{1}{9}$ . That is, A must decline to a point much less than  $\frac{1}{3}$  (nearly

<sup>1</sup>This result is obtained as follows: If A declines in value to  $\frac{1}{3}$  M,  $\frac{1}{3}$  of a unit of A contained in the standard has the value,  $\frac{1}{9}$ . The remaining  $\frac{1}{3}$  of value must be provided by the three quarter-units of B, C, and D. If  $\frac{1}{3}$  of a unit has the value,  $\frac{1}{3}$ , one unit has the value,  $\frac{1}{3} \div \frac{1}{3}$ , or  $\frac{1}{9}$ .

to  $\frac{1}{4}$ ), as compared with B, C or D, before it loses its excess value. This may be verified as follows :

$$\begin{array}{llll} 1000 \text{ units of B, C or D} & - & - & @ \frac{1}{4} M = 1222\frac{2}{3} M \\ 1000 A = \frac{1}{4} \text{ of } 1222\frac{2}{3} M & - & - & = 333\frac{1}{3} M \\ 3000 A = 333\frac{1}{3} M \times 3 & - & - & = 1000 M \end{array}$$

We have seen that the aggregate value of all commodities, measured in the multiple standard, must increase with an increase of product. How the value of any specific commodity will act, in relation to its increase in product, will depend on a variety of circumstances, and cannot always be predetermined. With any specific commodity we are not concerned ; but as to commodities in general, increase of product, in any instance must be accompanied by increase of value. That is to say, this must be the rule governing the movement of value, or we have an extraordinary circumstance confronting us, namely, that increase of value attends the industries that exhibit no change, or enterprise, or activity, at the expense of those which are enterprising. This condition, or predicament, follows directly from the exposition thus far. If the aggregate of commodities shows an increase of value, this increase must attach to such industries as have increased their product, or to those which have not. In the example cited, we saw that the values of A, B, C, D, each increased from 1000 to 1200 M, when the product of A rose from 1000 to 3000, and the decline of the unit value of A was to  $\frac{2}{3}$  of the standard, or to  $\frac{1}{3}$  that of B, C or D. That is, B, C, and D must rise in value in the ratio of  $\frac{4}{3}$ . If A declines so as to show no increase in aggregate value, that is, to  $\frac{1}{3} M$ , or  $\frac{2}{11}$  of that of B, C or D, then must B, C, and D advance still more. The consequence would be that listlessness and stagnation would enjoy all the fruits of alertness and enterprise. It is needless to state that the emoluments of real life are not so distributed, ordinarily. Hence it is confidently submitted that commodities taken individually, as a rule, increase in aggregate real value with increase of product. As has been remarked, the community in general benefits from the welfare of any specific industry, but the industry itself reaps the larger share.

That is to say, in the given example, B, C, D would be likely to show a slight increase in value, while A would show a marked increase. If a unit of A, for instance, should decline to  $\frac{1}{8}$ , instead of to  $\frac{1}{4}$ , the total value of A (3000 units) would considerably exceed 1200 M, while the average increase of B, C, and D would fall below 200 M.<sup>1</sup>

Recurring to the question of interest, it will be easy to determine the degree of productivity that will justify the employment of capital. First, what would be the effect of a decline in the product of one of the commodities? Supposing the output of A were 800 instead of 1000. Since an increase of output in the case of one commodity involves an increase of aggregate value of all commodities, it follows, as a matter of course, that a decrease of output will mark a decrease of this aggregate value. This is true, whatever be the relative appreciation of the commodity in question. Let A, for instance, rise in unit value to 97 times that of its companions, and the result may be computed as follows:  $(97 + 1 + 1 + 1) \div 4 = \frac{100}{4} = 25$ , the relative value of the standard.  $\frac{97}{25}$ ,  $\frac{1}{25}$ ,  $\frac{1}{25}$ ,  $\frac{1}{25}$  are the new values of A, B, C, D, referred to this standard, M.

800 A	-	-	-	-	-	@ $\frac{97}{25}$ M	=	3104 M
3000 B, C, D, combined	-	-	-	-	-	@ $\frac{1}{25}$ M	=	120 M
Total	-	-	-	-	-			3224 M

as against 4000 M, the value of the former product. To show that A must have its full quota, 1000, to reach the aggregate, 4000 M, it is necessary only to take the product,  $\frac{97}{25} \times 1000$ , or 3880 and add to 120 the result for B, C, D, and the sum is 4000 M.

What is of more significance, the appreciation of A in a greater ratio than the decrease of its product works to the great disadvantage of the remaining commodities. If A appreciates in relative value as 10 to 8, while its product declines in the

<sup>1</sup> If the unit value of A is  $\frac{1}{8}$ , supposing no relative change to one another in B, C, and D, their value would be as follows;  $\frac{1}{8}$  of  $\frac{1}{4} = \frac{1}{32}$ ;  $1 - \frac{1}{32} = \frac{31}{32}$ ;  $\frac{31}{32} \div \frac{3}{8} = \frac{31}{12}$ .

1000 units of B, C or D	-	-	-	-	@ $\frac{31}{12}$ M	=	1166 $\frac{2}{3}$ M
3000 units of A	-	-	-	-	@ $\frac{1}{8}$ M	=	1500 M

same ratio, 1000 to 800, there will fall to each share 250 each of B, C, D, and 200 of A, an equitable apportionment, although marking a decline of 50 A in the welfare of every individual. While any decline in product would thus be disadvantageous to the community as a whole, a decline accompanied by a larger ratio of appreciation on the part of one product would work, or might work, to the advantage of that commodity for a time. But consider the ultimate consequences. Suppose all industries should vie with one another to reduce the product in order to reap the advantage of undue appreciation of value. A community, collectively, for any period of time, and, individually,<sup>1</sup> in the long run, can profit only by an increase in output. We may then exclude the case of the temporary feasibility of interest that might attend the decline of products, and consider only the case in which the products show an increase. It will appear in the average case that interest is feasible only when the product shows an increase in excess of that amount which represents the value of the capital borrowed at the time of borrowing.

If A should borrow capital equivalent to 1000 A, and the excess of his product should fall below 1000, that is, his total product fall below 2000, so far as the community, A, B, C, D, is concerned, we should have a case of real decline of product, since 1000<sup>2</sup> of A's output would just offset borrowed capital,

<sup>1</sup>It is true that society will carry a few industries of comparatively slight importance, whose output is regulated with a view to large returns from a restricted output; but industries in general could not pursue that policy, since there would necessarily follow a decrease of total utilities, and, consequently, of aggregate value, to be distributed.

<sup>2</sup>There might be a slight appreciation of value in this case, the effect of which would be to reduce the quota required to reimburse the capitalist below 1000, and increase the residue above 800. But the change of value, resulting from the use of borrowed capital alone, could not be so great as to raise the residue as high as 1000, since in that case the 1000 A retained by the maker would have the value of 1250 M (800 : 1000 :: 1000 : 1250), and evidently no such contingency could arise as that 1000 A produced with the aid of borrowed capital should exceed the value of 1000 A produced independently, other circumstances remaining the same. Hence the capitalist's share could not fall as low as 800, nor could the borrower's rise as high as 1000. In fact, the logic above would fix the minimum limit of the capitalist's quota and the maximum limit of that of the borrower at 900.

while the remainder falls below the product when working independently of borrowed capital. This condition, as we have seen, would exclude the feasibility of permanent interest. If, however, the product exceeds 2000, a surplus of aggregate value is the normal result. There is no guaranty of interest in any specific case, because there is no uniform law governing the change of value consequent upon change of product; but the normal law of change must allow for a surplus aggregate value from which interest may be paid.

For instance, if the product should be 2500 or 3000, and the unit value of A should be maintained, it is evident that the 500 or 1000 excess product would provide for interest. The increased product, however, is apt to be accompanied by a decreased unit value. But decrease in the unit value of A means increase in the unit values of B, C, D. This decrease of A's value, nevertheless, could not normally extend to the point where B, C, D secure the advantage over A, as that would be a premium on immobility or incompetence. If the decrease should stop short of this point, our discussion has shown that a surplus remains to A which may be applied to interest.

It may be interesting to note that in the case cited above, namely, the case of a surplus A product, the trio, B, C, D, would have a surplus which, with A's residue, exceeds the latter's borrowed capital, whatever decline in value A's product should suffer, up to the point of absolute annihilation. Let A's product be 3000, the borrowed capital being 1000 M, or what was equivalent to 1000 A at the beginning of the enterprise. Suppose a unit of A, for instance, should decrease to  $\frac{1}{3}\frac{1}{8}$  its former value, or to  $\frac{1}{3}\frac{1}{8}$  M, B, C, D would rise in value to  $\frac{2}{3}\frac{2}{8}$  M, since  $\frac{1}{4}$  of a unit of each commodity at the prices, respectively,  $\frac{1}{3}\frac{1}{8}$ ,  $\frac{2}{3}\frac{2}{8}$ ,  $\frac{2}{3}\frac{2}{8}$ ,  $\frac{2}{3}\frac{2}{8}$  M, added together, equals 1 M, the standard [ $\frac{1}{4}$  of ( $\frac{1}{3}\frac{1}{8} + \frac{2}{3}\frac{2}{8} + \frac{2}{3}\frac{2}{8} + \frac{2}{3}\frac{2}{8}$ ) = 1]. Now, at the rate  $\frac{1}{3}\frac{1}{8}$  M for A, and  $\frac{2}{3}\frac{2}{8}$  for B, C, D, the latter three commodities would exchange against A 1 for 33—that is, B, C, D could receive their quota, 750, of A, or 250 to each, for  $\frac{2}{3}\frac{5}{8}$  each of B, C, and D. This would leave a surplus to these three of  $250 - \frac{2}{3}\frac{5}{8}$  of each commodity, B, C, D  $250 - \frac{2}{3}\frac{5}{8}) \times 3 = (750 - \frac{7}{3}\frac{5}{8}) = \text{total surplus}$ .

Value of this total,  $\frac{3}{4}$  M  $\times$  (750 —  $\frac{150}{4}$ ) - - - = 960 M  
 A's residue, 2250 (3000 — 750) @  $\frac{1}{15}$  M - - - = 90 M  
 Value of  $\frac{150}{4}$  of B, C, D exchanged for 750 A @  $\frac{3}{4}$  M = 30 M

The 960 M surplus to B, C, D shows how the latter benefit from A's misfortune. 960 + 90 + 30, or 1080 M, is the sum that theoretically, in this case, could be appropriated to reimburse the capitalist, including interest. The surplus to B, C, D grows with the decline of A's value, till at the point of annihilation of that value the surplus reaches the limit, 1000 M.

In our example, 3000 A represents an increased productivity of that commodity in the ratio of  $\frac{3}{4}$  (adding the equivalence, 1000 A, of the borrowed capital to the exclusive labor product, 1000). We have found that A may decline in unit value through a considerable range without losing its advantage over B, C, D. At  $\frac{3}{4}$ , as compared with the latter, the advantage is just overcome; but all the commodities at this point will show equal advances in aggregate value, enabling A still to pay interest. At the point where A's decline is to  $\frac{2}{3}$  of the standard, which is equivalent to  $\frac{2}{3}$  the value of B, C or D, A will just be enabled to restore the capital borrowed, and retain his own former product. But B, C, D's products will at the same time advance in the ratio  $\frac{4}{3}$ , which would enable the community, as a whole, without prejudice to their welfare, still to pay interest on A's borrowed capital. This condition of affairs will continue until the decline of A's unit value reaches the ratio  $\frac{1}{3}$ ,<sup>1</sup> compared

<sup>1</sup> This rate,  $\frac{1}{3}$ , indicating the limit of decline in the value of A, compatible with interest resources, may be obtained algebraically, as follows:

Let  $x$  = the required ratio.

Then  $\frac{x}{4}$  = the value of the quarter-unit of A in the standard, M.

$(1 - \frac{x}{4})$  = the value of the three quarter-units of B, C, D in the standard, M.

$(1 - \frac{x}{4}) + \frac{3}{4}$  = the value of one unit of B, C, or D =  $(\frac{4}{3} - \frac{x}{3})$ .

$(\frac{4}{3} - \frac{x}{3}) \times 3000$  (the B, C, D product) =  $(4000 - 1000x)$ .

$x \times 3000$  (the A product) =  $3000x$ .

By hypothesis, the entire product, whose value is the sum of  $(4000 - 1000x)$  and  $3000x$ , just discharges the debt of 1000 M, borrowed capital, while leaving the former product-value, 4000 M, intact. Hence the equation,  $4000 - 1000x + 3000x = 5000$ , which yields  $x = \frac{1}{3}$ .

with the standard, which is equivalent to  $\frac{3}{4}$ , compared with B, C or D. If the value should fall below  $\frac{1}{2}$ , the community as a whole is prejudiced by the use of the borrowed capital.<sup>1</sup> These deductions are based on the following computations:

A, at  $\frac{3}{4}$  of B, C or D, when referred to the standard M, reduces to the relation, A,  $\frac{8}{11}$ ; B, C, D, each,  $\frac{12}{11}$ . This relation satisfies the two conditions that A shall equal, in unit value,  $\frac{3}{4}$  of B, C or D, and that one unit of each commodity shall together equal 4 M.  $\frac{8}{11} = \frac{3}{4}$  of  $\frac{12}{11}$  and  $\frac{8}{11} + \frac{12}{11} + \frac{12}{11} + \frac{12}{11} = \frac{44}{11} = 4$ .

3000 B, C, D	- - - - -	@ $\frac{12}{11}$ M	= 3272 $\frac{8}{11}$ M
3000 A	- - - - -	@ $\frac{8}{11}$ M	= 2181 $\frac{8}{11}$ M
Total	- - - - -		5454 $\frac{8}{11}$ M
Deduct borrowed capital	- - - - -		1000 M
Balance	- - - - -		4454 $\frac{8}{11}$ M

This shows a surplus to the community of 454  $\frac{8}{11}$  M. Deducting 1000 M for restored capital shows A's surplus to be 181  $\frac{8}{11}$  M. He is in a position to divide this surplus with the capitalist, in discharge of interest, and still show the same surplus as his companions, since  $\frac{1}{2}$  of 181  $\frac{8}{11}$  = 90  $\frac{10}{11}$  =  $\frac{1}{2}$  of 272  $\frac{8}{11}$ , the aggregate surplus of B, C, D.

For A =  $\frac{3}{4}$  the standard, or  $\frac{3}{4}$  of B, C or D, we have the following result:

3000 B, C, D	- - - - -	@ $\frac{12}{11}$ M	= 3333 $\frac{1}{11}$ M
3000 A	- - - - -	@ $\frac{8}{11}$ M	= 2000 M

These figures show that A could just refund the capital, while B, C, D would be in a position to pay the interest for A and still maintain an advantage.

<sup>1</sup> It is only on the supposition of accumulated goods, extravagantly depreciating during the process of production, that we can find the conditions for a decline in aggregate value. In the case of the text, if we consider the last supposition, the capital, 1000 M, becomes transformed, economically speaking, into 1000 A and thus suffers with the entire product of A extravagant depreciation. Such circumstances could obtain in real life, as a rarity, perhaps, but cannot be taken into account in formulating general principles.

Even in this fanciful case, the community, A, B, C, D, could have thrown the burden on the capitalist by stipulating in the beginning that the loan should be negotiated in terms of A, and returnable in that commodity. This would have left the community a surplus, which would have carried an excess value as long as A retained any value whatever.

Lastly we may make the computation based on the relation,  $A = \frac{1}{3} M$ , or  $\frac{1}{3}$  of B, C or D:

3000 B, C, D	-	-	-	-	-	@ $\frac{1}{3} M$	=	3500 M
3000 A	-	-	-	-	-	@ $\frac{1}{3} M$	=	1500 M
								<hr/>
Total	-	-	-	-	-	-	-	5000 M
Deduct capital	-	-	-	-	-	-	-	1000 M
								<hr/>
Balance	-	-	-	-	-	-	-	4000 M

The course that A should pursue, under these circumstances, is plain. When the decline in unit value reaches a certain point, self-interest will suggest the restriction of his output, or, better still, the diverting of a part of his energies into more promising channels. If B, C, D should exercise like wisdom, their co-operation in extending production in all lines would obviate the unpleasant embarrassments that inevitably attend a decrease of utilities, and would greatly advance the general welfare of the community.

## II.

The foregoing discussion is intended to show that value, aggregate real value, follows the quantitative movement of economic utilities, and is not the basic consideration in the problem of interest. This result may be reached from various points of view. Let us consider for a moment the question of interest without reference to the category of value. To do this it will merely be necessary to suppose every member of the community that produces the utilities that he himself consumes. If A, B, C, D be types of these utilities, a representative producer makes his own A, B, C, D, and there is no occasion for exchange, and, of course, no need for a mechanism to perform that office. Suppose, under these circumstances, an enterprising capitalist appears on the scene. He goes over the situation, and proposes to these simple craftsmen to provide machines for them that will double their output, he to take, as remuneration, one half of the excess. The arrangement is effected. The capitalist finds that he has made a good investment, realizing all his expense with a handsome bonus. The community has paid capital and interest out



of the surplus product. The notion of value has not occurred to the members, at least, in any very definite way. They have effected no exchange, other than the exchange of consumption goods for the use of machines. From long habit, their circumstances are intelligible to them only in terms of utilities—the quantity of these. The inspiration to institute a system of measurement between their products and this radically dissimilar species of property belonging to the capitalist would hardly seize them in the earlier stages of their new experience. The machines have merely been entrusted to their care and use. The question of reimbursement has been one of division of their surplus product. Interest has been paid by them in the natural, simple way, out of the source and essence of all economic reward, utilities.<sup>1</sup>

### III.

Supposing, in our illustration, a member of the community, A, B, C, D, possessing ingenuity, invents methods to increase the quantity of his product without working in the long run more hours than formerly. He is unquestionably better off than before, although the notion of value may be excluded from his thoughts or life, since exchange is not a part of either. He will consider himself well compensated for devoting a portion of his time to inventing new processes. Since exchange is not the order of the day, this citizen may be sufficiently philanthropic to share his discoveries with his neighbors, or the latter may be equally ingenious, and accordingly increase their product likewise. This is not the method of real life, but the object aimed at, namely, the increase of utilities, does not change with any alteration of the industrial mechanism. It is likely to be the case that the

<sup>1</sup> It will, of course, be claimed that the enterprising capitalist would push his advantage to the point of exacting nearly or quite the whole of the excess product for the use of the machines, and that the community would intuitively appraise the machines according to their efficiency, ignoring (in case they were aware of) the comparatively slight cost to the capitalist. No doubt time would bring about a certain measure of enlightenment, and in case of a single capitalist, the valuation would stand as just stated. The monopoly value would be at par with the efficiency. This point will be discussed presently in the text.

inventor will find his pleasure and profit in devoting himself to his inventions, and that the rest of the community will be more than satisfied to share their utilities with him, if he can furnish devices whereby all concerned will have increased quotas. In this case of simple barter, barter of utilities for implements or machines, we have a true case of valuation, valuation of consumption goods in terms of machines or *vice versa*. If we suppose it to be a primitive pioneer case, however, there is no danger that the category of value will so exclusively intrude itself on the attention of these simple traders, and so distort their vision as to blind them to the real significance of the transaction, namely the increased quantity of utilities. Value has as yet scarcely taken on perceptible form. If regarded at all, it is regarded only as an incident and, by no means, the end and consummation of this simple readjustment of industrial life.

Now, if we follow the interrelations of value and utilities, as manifested in the most highly developed mechanism of modern life, we must find the situation the same. We *must* find it the same, because the time never comes when consumption goods, or utilities cease to be the ultimate end of economic activity. Value, or valuation, comes to be more and more prominent and at last indispensable, simply because exchange involves valuation, and division of labor and segregation of industries necessitate exchange. But neither valuation, nor exchange, nor division of labor is an end to itself. The end of each and all collectively is increase of utilities. It is always for the sake of increased utilities that division of labor is resorted to, that exchange is resorted to, that valuation becomes the efficient and prominent expedient for the distribution of utilities, but only the expedient.

It therefore appears that increase of commodities, or utilities, involves normally increase of total value—that is, of real value, value according to the multiple standard. Indeed, conventional or money value, to be satisfactory, must not greatly offend this criterion. For transactions that do not involve time it would work no special injustice, although there might be great

inconvenience, for values to change haphazard ; but for transactions involving time, it is very important that the unit values of one period conform closely to those of another. When change of value can be forecast, the change can be allowed for in the negotiation. Irving Fisher<sup>1</sup> has shown how interest moves up and down with the depreciation and appreciation of the standard. This phenomenon could not happen if money value were the ultimate consideration in exchange. It is an emphatic confirmation of the view that utilities are the fundamental determining factor. Indeed, public morals demand that money value, based on an arbitrary standard, keep closely in touch with the movements of utilities. If the standard changes rapidly and independently, deferred payments are attended with great injustice, as, witness the experience with inconvertible paper. And even in case of money of intrinsic value, the course of silver in late years shows the necessity of actually discarding a standard when its movements defy control or fore-casting.

#### IV.

If in our simple community, A, B, C, D, a single member makes the machines, it will be interesting to enquire the rate of exchange between machines and finished products. Let us suppose that to construct and keep in order one machine, or one set of machines, requires one fourth of the maker's time, so that the productivity of the machine must make up for this one fourth in a specific period, say the life of the machine. Let us suppose that in this three fourth's time, that the machine is in operation, its productivity makes up not only the one fourth but another one fourth in addition. And for the machine to furnish a profitable process there must be some additional productivity. Then since, by hypothesis, the machine has worked but three fourths time, the actual productivity of the machine is two thirds in excess of that of hand work, so that a purchaser using the machine full time realizes a product  $66\frac{2}{3}$  per cent. greater than formerly. Böhm-Bawerk's claim that the machine has the value of the

<sup>1</sup>"Appreciation and Interest." *Publications of the American Economic Association*, vol. xi.

excess product may be tested in this simple case. If there is but one maker of machines, and but one capable of making them, it is plain that he can command anywhere up to this two thirds product of hand work. The machine has cost him in time what is equivalent to one third of his own hand product, so that the limit of his natural gain is 100 per cent. It will fall some below this point, since the purchaser will rarely invest excepting under the stimulus of some prospective advantage. But it must be conceded that, in this case, the value of the machine has as its limit the excess value of the product. But this case supposes a strict monopoly. Supposing that all the members are capable of making machines, but that from choice the making of them is left to a few, or suppose that there is unrestricted competition in the making of machines. It is equally plain in this case that the value of the machine will approach the one third point instead of the two thirds point, that is, toward the point which represents the expenses of production. We can concede with Böhm-Bawerk that the product (value of the product, if you choose) determines the value of the machine, but only on the first supposition, namely, in the case of a strict monopoly. In the case of competition this doctrine of Böhm-Bawerk must be discarded. If a machine is sufficiently productive to increase the product above what could have been realized by the quantity of labor required to make the machine, it is a profitable investment, and in the average case will produce an excess value in the product above the value of itself, in case of free competition. The normal value of a machine, then, will range from the "expenses of production" as its lower limit, to the excess value of the product, as its upper limit. In the case of competition the quantity of product included between these points affords the basis of interest. It is plain that these circumstances obtain in the simple case cited, and, in the complicated relations of modern life, the same conditions persist.

## V.

Probably the circumstance that gives color to the view that the surplus product controls and determines the value of the

capital is that in individual and sporadic instances, there is a great decrease of unit value following a sudden or considerable increase of the product. This is true of individual cases, but it is fallacious to infer that it is true as a rule. It cannot be true as a rule. For instance, supposing A, B, C, D expand their product to fourfold, through the use of capital. Supposing the capital employed in each case is 1000 M, and that the unit values of A and B drop one half. The values<sup>1</sup> of C and D must at the same time advance, on the average, one half, for

$$\text{Two units of A and B @ } \frac{1}{2} M = 1 M$$

$$\text{Two units of C and D @ } 1\frac{1}{2} M = 3 M$$

making four units = 4 M. That is to say there can be no decline without a corresponding advance. The average remains the same. If certain articles decline in unit value, from whatever cause, other articles will necessarily advance, making the average total value of a commodity increase or decrease with a corresponding movement of the product.

On the average, then, increased product of a commodity must yield increased aggregate value. This is the law of the average, and interest is a question of average. Individual borrowers must pay interest whether their investments are profitable or unprofitable. The average case, owing to the average productivity of capital, has been, as a matter of fact, profitable, which has furnished, not the pretext merely, but the justification of interest.

## VI.

If a man produces a certain product by his own labor, it is certainly competent for him to equate the values of the labor and the product. This is a subjective valuation, simple and correct. His labor is his own, his product is his own; the one produced the other. There is no way for him to value his labor but in terms of the product, or its value. If this same man makes a machine that enables him to double his product, this excess product is likewise his valuation of his machine. His unassisted

<sup>1</sup> See p. 62.

labor has given him a single product; his machine<sup>1</sup> has enabled him to double the product. There is no more natural or just mental process than to assign the entire value of the product to the two factors, and in the proportion as indicated by the above analysis. It is a case of pure subjective valuation.

Now let the man go out into the market and hire labor. He pays the market price. The value of the labor is fixed. It is true that the prospective product may indirectly influence the price of the labor. It is fair to assume that the prospective product will have some quantitative relation to similar products of the past. But, at best, this is but one among a number of determining forces. If labor is abundant, competition will depress its price, despite the enhanced value of the product, and *vice versa*. Now, if the value of the hired laborer's product is twice his wages, the difference is pure gain. The great value of the product does not correspondingly enhance the value of the labor. Had the employer been unfortunate, obliged to sell the product for half the wages, this circumstance would not have depressed the latter. Of course, it is the average case with which we are concerned; and the average case must yield a surplus, or there would be no inducement to hire.

The case is the same with capital. If a man purchases a machine, and thereby realizes twice the cost of the machine, or 25 per cent. in excess of that cost, this circumstance does not determine the price of his purchase. It may, as in the case of labor, be one of a group of factors that determine that price, but the excess value of the product is gain from which interest can be appropriated, in case the capital is borrowed. The point is that here the analogy between labor and capital is perfect. The objective value in each case is determined in the market — both the value of labor and that of labor's assistant, the machine. The product determines the value in the one case no more than in the other.

## VII.

What rôle does value play in the interest problem? In relation to the agencies which we have been considering, labor,

<sup>1</sup> The time for making the machine is not considered here.

capital, production, exchange, interest, etc., value is an effect and not a cause. We have seen that the industrial processes could go on without requiring the formality of valuation or indeed the conception of value. However the great impetus to industry which division of labor and exchange lend, by means of the facility with which the various processes are carried on, exalts value to an important and conspicuous rank in the hierarchy of economic concepts. But, after all, value, in our problem, has only vicarious or representative importance. Back of value we find the thing of real importance, the utility which value interprets and represents. Interest can be a question of conventional value, only when the latter gives a true interpretation, just as the register of the thermometer can be a true index of heat phenomena, only in case the registration is true. If the registration is false, it gives a false reading of the phenomena it professes to interpret. The water does not boil in obedience to the registration. Rather must the registration be adjusted to a correct interpretation of the phenomena. It is even so with value. The registration must be adjusted to the phenomena of economic life, in the field of distribution, and not *vice versa*.

Value is merely a relation. It arises in modern life out of the process of partition of utilities, or commodities, into the various shares of wages, profits, interest, etc. These shares have real serviceable content, and may exist actually, and always do exist logically, prior to the concept, value, which merely co-ordinates and interprets them quantitatively. Value, being a relation, cannot create so important an entity as interest, which is indeed one of the substantial categories related. A formula, or category of relation, cannot create the things related. Value is not *the*, or *a*, cause of the shares of the product. It serves, in the realm of distribution, as the language, or the quantitative interpreter, of these shares, rather than the active agent to produce them. Value is the mirror through which is seen the quantitative relation of the shares, rather than the creator of any share. If, by reason of a grave fault in the standard, the conventional value

speaks a seriously imperfect language, or shows a badly distorted image, a drastic remedy must be applied—a change of the standard. The rôle that value plays in the problem of interest is not fundamental, though important. It is conspicuous, but not essential. It is interpretative, but not creative.

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## CREDIT-CURRENCY AND POPULATION.

IN this JOURNAL for March 1895 the writer of the present article presented some results of an inquiry made by the comptroller of the currency,<sup>1</sup> concerning the proportion of credit-paper used in retail payments. An attempt was made to formulate a relation between population and proportion of credit-paper used. The data were so meager that the attempt seemed over-bold, and the conclusions but slenderly supported. Two years later a second set of data was secured, much more voluminous and more representative of the habits of the people in the use of credit-paper. Although the new data seemed to support the previous conclusions, they could in no sense be regarded as proving them, and it was a question whether it was worth while to present the new evidence. Further reflection, however, strengthens the writer's belief in the probable correctness of his first conclusions. This, together with the importance of the subject, must serve as his excuse for taking up the matter anew.

The data obtained for these reports contained, among other things, a statement of the amount of deposits made in the banks which replied, on a selected day, together with the amount of these deposits made in the form of credit-paper.<sup>2</sup> The returns dealt separately with the returns of retail traders, wholesale traders, and "all others." The primary purpose of getting the data was to determine the extent to which credit-paper was used in payments.

Obviously, if there is a definite relation between increasing population and the quantity of credit-paper it uses, a definite line could be drawn to represent this relation, using the population numbers as points on the axis of abscissas and the corresponding amounts, or proportions, of credit-paper to indicate the values of the corresponding ordinates. Is it possible to use the data secured so as to show this, even in the roughest way? To get a true curve of such a relationship, if it exists, there are certain conditions necessary, whose importance is emphasized, if one may say so, by their absence from the statistics at hand. The

<sup>1</sup>See the *Comptroller's Report*, 1894 and 1896.

<sup>2</sup>I have given elsewhere my reasons for believing that the information secured in these reports fairly shows the extent to which credit-paper is ordinarily used in payments in the United States. See the *Comptroller's Report* for 1896.

different cities and towns should present a gradual and equable increase in population. That is, in order to yield a line that could be properly called a curve, each place should have a population larger by a constant amount than that of the one preceding it. But population does not distribute itself in so accommodating a fashion! The best we can do is to group the places from which answers came, according to size, at intervals of, say five thousand, and to take the average of the population of the places in each group as points on our axis of abscissas; and the percentages of the corresponding averages of deposits and checks for our ordinates. These averages will not give true points on the curve, but they will be approximately correct, the more so the larger the number of places in each five thousand interval, and the more nearly equal the population of the places in each group. One source of error in connection with population was the necessity of taking the figures of the census of 1890 when they were five or six years old. The use of these figures involves, of course, the assumption that the different places have the same relative positions in the scale of population that they had six years previously. This cannot be true, but as the error runs throughout our table and probably does not vary greatly between different population groups, it can hardly be of serious importance in a set of statistics so rough as those with which we have to deal.

A second condition necessary to the success of our plan is the provision of some means to offset influences due to differences in the economic character of the places grouped together. Where the number of places in a group is considerable, we may safely assume that this result is attained by the diversity which a large number of places is likely to present. Where the number is small, or even only one, we may still have a correct result, for the industrial life of the population may be so varied as to be representative. Whether or not this is so in a given case must be determined by our knowledge of the place, or places, from which the percentage is derived.

Again, since our data deal with the percentages of credit paper, we need to know if the habit of using such paper prevails throughout the country to substantially the same extent, or if differences in this respect neutralize one another. In the second report on this matter to the comptroller of the currency, attention was called to differences in what we may, for brevity, call the check habit in retail payments, arising out of differences of nationality, education, etc. These differences,

however, are not of very great magnitude, and disappear largely in our grouping of different places. For single places we can make some allowance for them.

Further, we must assume for our purposes that volume of business or of payments is approximately proportional to population. This is not a violent assumption for *retail trade*. There are other conditions which must be satisfied by any statistics that purport to give us information about the subject of our inquiry; but the discussion of these, as well as the further consideration of some we have mentioned, can better be taken up in connection with our data.

The data that we have, and any that we are likely to get, are evidently far from meeting the exact requirements of statistics that would reveal the law we are seeking, if such a law exists at all. To put the matter bluntly, we have a set of figures which are not directly applicable to our purpose and are so full of errors that the use of them as they stand would be sure to lead us far astray. Is it possible to use them indirectly to suit our purpose? Can we so adjust and allow for at least the evident errors as to neutralize them partly or wholly? Our aim is one of so much interest and importance that the trial is worth while. And mathematicians and statisticians, at least, do not need to be told that out of data of such character it is sometimes possible to get suggestions, indications, that point the way to truths which the figures cannot establish, or even fully express.

The investigations referred to produced two sets of data. The statistics obtained in 1894 refer only to retail trade and were much less complete than those secured in 1896. The former show the total receipts made in national banks in the United States on the "settlement day" following the 1st of July, by retail tradesmen of sundry kinds, and the amount of these receipts in the form of credit-paper of various kinds. In using the data for the present purpose the returns were arranged<sup>1</sup> so as to show the percentages of checks in the bank deposits by population groups. These groups, however, were not averaged. Various refinements of the statistics were then made showing the percentage of increase of total deposits and of checks for successive population groups, and the ratio between the two. But there were so many sources of error, and the data were so meager, that these refinements were gratuitous. If the data could be regarded as furnishing any indication of a law, it was "exceedingly remote; so much so,

<sup>1</sup> See this JOURNAL, March 1895.

indeed, that if we consider them by themselves we cannot be sure that they mean anything."<sup>1</sup> Such as the figures were, however, they are given herewith:

PER CENT. OF CHECKS USED, BY POPULATION GROUPS OF 5,000 EACH,  
FROM ALL RETURNS.

Population	Per cent. checks	FIGURES FROM WHICH PER CENTS. WERE CALCULATED		Per cent. of increase of totals, group to group.	Per cent. of increase of checks, group to group	Ratio of per cent. increase of checks to that of totals (latter taken constant)
		Total returns	Total checks			
1,000- 5,000	59.1	1,494,159	883,134	....	....	.....
5,000-10,000	55.5	839,950	466,229	-56.2	-52.8	0.940
10,000-15,000	59.0	732,433	433,145	-87.2	-92.9	1.060
15,000-20,000	60.6	265,598	160,902	-36.2	-37.1	1.024
20,000-25,000	62.2	364,481	226,687	137.2	140.9	1.027
25,000-30,000	52.5	117,290	61,573	-32.1	-27.1	0.840
30,000-35,000	52.0	71,746	37,254	-61.1	-60.4	0.990
35,000-40,000	47.1	104,870	49,483	146.2	132.7	0.910
40,000-45,000	54.7	156,249	85,460	148.9	173.1	1.160
45,000-50,000	49.1	61,824	30,358	-39.6	-35.5	0.890
50,000-55,000	62.6	78,971	49,454	127.9	162.9	1.270
55,000-60,000	54.8	105,611	57,866	133.7	117.0	0.870
60,000-65,000	48.5	36,981	17,937	-35.0	-30.9	0.880
65,000-70,000	....	.....	.....	.....	.....	.....
70,000-75,000	32.3	29,116	9,396	.....	.....	.....
75,000-80,000	61.9	86,535	53,542	297.2	569.7	1.920
80,000-85,000	46.1	46,521	21,453	-53.8	-40.1	0.740
85,000-90,000	62.2	22,334	13,870	-48.0	-64.5	1.340

If we plot the line to represent the percentages of checks,<sup>2</sup> it shows a rough periodicity. The last column of the table was worked out to see whether it would give any clearer indication of the relation of the successive maximum and minimum points; but an inference can hardly be drawn from the figures, unsupported by other considerations.

On the whole, however, the data seemed to the writer to furnish some faint indications of the existence of a relation, and it was of considerable interest to secure a more complete set of statistics. An independent study of fuller data might throw more light on the matter, whether confirmatory or destructive of these indications. Such

<sup>1</sup> *Ibid*, p. 212.

<sup>2</sup> Since the averages of the population groups were not found, it is necessary to take equal distances on the  $x$  co-ordinate. This, of course, causes error. The percentages do not correspond to places differing by exactly 5,000 population. But this will not affect the general character of what we may by courtesy call the curve.

data were obtained in the inquiry made in 1896. The banks of the country were then requested to furnish their total deposits on a given day, stating separately the amounts of money and of credit-paper deposits, and distinguishing the deposits of wholesale business from those of retail, and both from the deposits of all other depositors.<sup>1</sup>

For our present purpose we use, as has been said already, only the statistics relating to the deposits of retail tradesmen. For the previous figures concerned only this class of business, and these statistics must represent, more fully and correctly than the others, the daily habits of the people in the use of various media of payment. The proportion of wholesale business settled by means of credit-paper is everywhere very large, and pretty nearly constant. In the figures for retail business not only are the operations of a larger number of people represented, but the variations in the use of credit-paper are much greater. Hence we can follow any indicated tendency more easily, and have more room to allow for miscellaneous causes of variation. The figures for retail trade are better for our purpose, moreover, than are those representing the deposits of "all other" classes. These latter probably represent a smaller class of the population, and very likely include more long-time payments. Moreover, the people represented are already represented in the figures of deposits for retail trade.

The following table gives the data secured concerning retail deposits. The first column shows the averages of the population of places from which information was received, at intervals of five thousand; the second column gives the number of places represented in each population average; the third, the number of banks, etc.

It is necessary here to consider a little more carefully the limitations under which these figures must be used. The larger the number of places represented in a given population group, the more likely are the data correctly to reveal the relation between population and proportion of credit-paper, if such relation exists. For, as has already been urged, we have in each group places approximately alike in population, but different in economic character, in the degree of development of the "check habit," and in other respects which affect the proportion of credit currency used. We may fairly assume that

<sup>1</sup> The representation and analysis of the data secured will be found in the *Report of the Comptroller of the Currency*, 1896, together with my opinion as to the real significance of the figures. Cf. also, *JOURNAL OF POLITICAL ECONOMY* for March 1897.

TABLE I.

	Averages of population	No. of places	No. of banks	Checks, etc.	Total deposits	Per cent. checks
1	1,648	2,675	3,309	\$3,697,317	\$5,627,606	66
2	7,915	278	564	1,520,659	2,437,509	62
3	13,096	94	220	710,547	1,128,251	63
4	18,186	50	175	611,529	934,846	65
5	22,418	37	125	487,125	800,879	61
6	28,290	20	71	228,443	395,310	58
7	33,456	12	63	166,170	285,143	58
8	33,312	13	52	230,326	383,010	60
9	43,611	9	46	222,246	361,239	62
10	48,785	7	44	192,596	321,768	60
11	54,078	5	29	85,118	149,981	57
12	59,133	5	34	267,056	395,230	68
13	63,170	4	21	106,698	177,514	60
14	70,028	1	7	17,179	28,534	60
15	74,806	2	15	61,765	143,472	43
16	77,404	3	15	98,919	189,173	52
17	82,426	3	24	80,997	183,891	44
18	88,146	2	21	103,867	167,357	62
19	94,923	1	11	48,797	70,144	69
20	105,361	2	8	99,027	145,382	68
21	106,713	1	4	425,447	535,978	79
22	132,973	4	53	670,979	870,383	77
23	140,452	1	8	31,971	59,885	53
24	162,957	3	24	352,325	451,733	78
25	181,830	1	9	159,506	230,664	69
26	205,172	2	20	203,124	290,193	70
27	225,664	1	17	132,569	206,600	64
28	230,392	1	12	93,185	155,696	60
29	238,617	1	45	203,906	344,350	59
30	242,039	1	10	117,480	155,315	69
31	261,353	1	21	372,036	470,132	79
32	297,952	2	26	302,807	459,300	66
33	434,439	1	25	220,232	376,606	58
34	448,477	1	62	817,463	1,086,732	75
35	451,770	1	17	539,932	655,804	82
36	806,343	1	22	548,057	729,100	75
37	1,046,964	1	66	1,136,193	1,445,885	78
38	1,099,350	1	36	689,936	960,647	72
39	1,515,301	1	70	1,696,907	2,136,816	79

the percentage of checks in any group, if it includes a goodly number of places, is nearly such as would be used in a place of the size of the group, in which differences in industrial character, in the "check habit," and in other material respects, were present in the proportions in which they really exist in our country.

The population groups of the table approximate more or less closely to the type, according to the number of places represented. Of course, a group of a small number of places may also be typical.

We cannot say what the minimum number may be. Further, the amounts of business in such *typical* groups, *on a common average of prices*, would be proportionate to their numbers. The various industries are carried on by workmen of the same average ability, with similar tools, and under similar conditions. Of course, no one population center, no city, town, or village, of this typical character exists. But every place with a considerable diversity of industry approaches the type, the more so the more nearly its industries in number, volume, and character are representative of the industries of the country at large. If the number of banks represented is large, for a group in which the number of places is also large, the probability of the accuracy of the data secured is obviously increased, provided there is no reason to think that the distribution of the banks is bad. If, however, the number of banks which furnished data for a population group is large, while the number of places is small, there is possibility of serious error. The peculiarities of a place will be exaggerated the larger the number of its banks. If the data in any instance are bad from this cause, they will be, like the little girl in the story, very bad. In the one or two instances in which this occurs, however, we may be able to find means to make allowance for this disturbing cause.

One other difficulty lies in the fact that the deposits from which the percentages are drawn represent a larger amount of business than the retail payments of a day would amount to. As the writer has pointed out elsewhere,<sup>1</sup> this excess may mean either that the deposits of credit-paper included payments of accounts of some standing, or that retail purchases keep ahead of consumption by so much. The latter is the better explanation, because, so far as investigated, the proportion of credit-paper in deposits did not vary materially from day to day for a month.<sup>2</sup> But whatever view is taken of the cause, if the excess of payments over consumption were in the same proportion in all cases, the *relative* variations of the credit-paper percentages would not be affected. This constancy cannot be expected, however. Hence, we must expect irregularities from this source, and cannot correct them.

Turning now to the table, we find a succession of alternate high and low percentages, but at intervals by no means regular. We can follow the course of the figures more easily if we plot them. We get

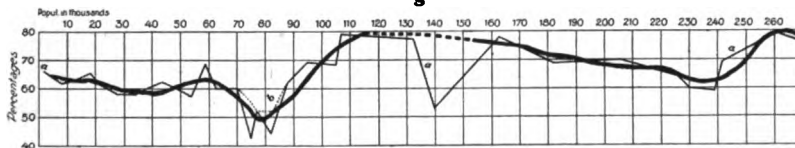
<sup>1</sup> See *Report of the Comptroller of the Currency*, 1896, and this JOURNAL for March 1897.

<sup>2</sup> See *Report of the Comptroller of the Currency*, 1896, p. 85.

the line  $\alpha$  of diagram I, through the point representing the population group of 261,000. Beyond that the points are too widely separated to permit the drawing of a continuous line. The thick line is simply a free representation of the general course of the curve.

The points on the axis of  $x$  are at fairly regular intervals of approximately 5,000 up to the twenty-fourth place, of 163,000. From this point to the thirty-second place (297,952) the intervals are longer, but sufficiently numerous to give the general trend of the curve, as, for brevity, we shall call it. Beyond this, especially between the thirty-fifth and thirty-sixth places, the intervals are too great to give us any reliable indications. Leaving for the present the discussion of details and corrections, let us first look at the curve as a whole.

Diagram I



An examination shows that up to the 260,000 point it consists of at least two great waves, each of which is made up of a series of smaller waves. The first great sweep extends to the group whose population is somewhere between 100,000 and 160,000. The points on the wave are numerous enough, up to 100,000, to justify us in thinking we have its general course fairly well determined. Of its course between this point and 160,000 we cannot be so sure. At 106,713<sup>1</sup> we have the percentage 79. But it is derived from the returns of Denver alone, and is doubtless too high. Four banks are represented, and the average per capita deposit is \$5.00. The percentage cannot be representative. At 132,978 we have a percentage of 77, from 53 banks, in 4 places. At 162,957 we have 3 places and 24 banks represented, yielding a percentage of 78. It seems certain that between 105,361 and 162,957 we are in a region of high percentages. This is said in spite of the depression at point 140,452. The percentage here is given by Omaha alone, the returns of 8 banks being included. It cannot be typical, for Omaha is economically peculiar. Moreover, we know now that Omaha does not belong

<sup>1</sup>The groups 105,361 and 106,713 represent different 5,000 intervals. For this reason they are not combined, though so close. Moreover, the latter is so abnormal that a combination would be colored almost exclusively by it.



at this place in the population schedule. If we put it where it belongs, after the eighteenth place, its percentage would harmonize more with the others. On the whole, the evidence seems to justify us in concluding that the first great sweep of the curve ends in a high point somewhere between 130,000 and 160,000. From here on we have a second great sweep of similar character, apparently ending in the neighborhood of the 260,000 point. Beyond this the data are too meager to give a continuous line. There appears to be a depression between 300,000 and 430,000, and a high point somewhere beyond 450,000.

If we draw<sup>1</sup> the first two sections of the curve on the same scale, under each other as in Diagram II, we notice at once a striking similarity of general character. The heavy lines are approximate average lines drawn to bring out the similarity. Each section shows a gradual decline for about two-thirds of its distance, and then a sudden rise. The maximum and the minimum points of the second section are higher than those of the first. The group of percentages towards the end of our table averages higher than anywhere else.

The great depressions in the two sections represent the returns of cities,<sup>2</sup> several of which have an industrial character that leads us to look for a low percentage of checks. We are not here concerned with the question whether there is a connection between size and economic character of communities. It may be that a certain economic life is associated with a population of a certain number, or of multiples of that number. That is a question for the sociologist, and his data for answering it are meager enough. Here we can simply note the facts that the industrial population predominates at these points, and that our percentages of credit-paper, therefore, fell away.

Let us turn now to a somewhat more detailed examination of one of the sections of the curve. Since the points are most numerous in the first section, it is this that will best serve for our study. The curve is tolerably smooth through the first eleven points furnished by the figures. The table shows that each of these points is determined by a number of places in no case less than 5, and a number of banks

<sup>1</sup> The thin lines *a* and *c* are plotted from the figures, *a* representing the first section, up to 95,000; *c* representing the second section, from 163,000 to 260,000. Line *a* has been smoothed out as described later.

<sup>2</sup> Fall River and Scranton are in the first section; Toledo, Worcester, and New Haven in the second.

in no case less than 29. The percentage of checks (66) for the places below 5,000, is probably too high, because the deposits in the small agricultural districts very likely include a disproportionate amount of time accounts. But we have no means of testing this supposition, and must use the figures as they stand. No reason appears for questioning the representative character of the other percentages in the first eleven places. The sudden rise at the twelfth place is due mainly to Trenton, N. J., and Portland, Ore. But the business character of Portland is peculiar, and Trenton is possibly largely influenced by New York and Philadelphia. The percentage is probably too high.<sup>1</sup> But we have, again, no means of correction. The important thing is that hereabouts we find, or seem to find, the turning point of an upward movement.

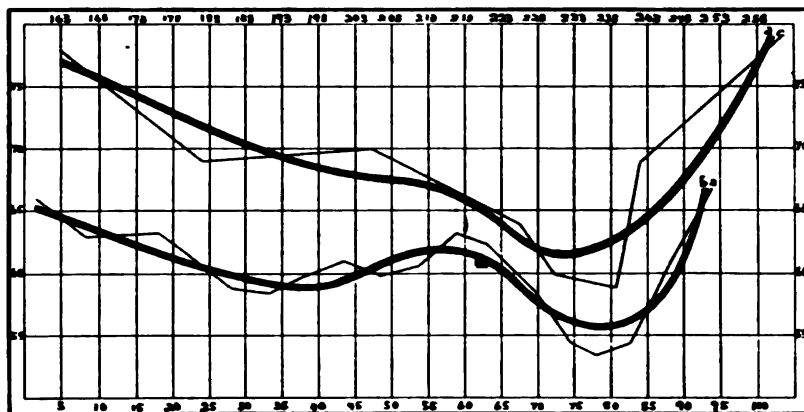
At the fifteenth place the line marks a sudden and great dip, and immediately rises again. It falls from 60 to 43, and then rises to 52. The two cities which yield the average 43 are Fall River and Scranton. The former is a textile manufacturing city; the latter a mining city. A large proportion of the population of each is of foreign extraction. These facts lead us to expect a percentage of checks below the average,<sup>2</sup> but 43 seems too low. For, curiously enough, the low average is due to the *national* banks of Fall River. Without their \$72,083 deposits and \$22,783 checks, the percentage would be 55, a figure which seems more like what we should expect in an average group of the size and character of the fifteenth. This statement is supported by the fact that if we combine the returns of the group above with those of that below (14 and 16) the one under discussion, we get a percentage of 53 for an average population of 75,560. We may fairly replace the percentage of the table, 43, with 55. The seventeenth percentage also seems too low. The cities included are Toledo, Worcester, Mass., and New Haven, Conn. If we omit Toledo, the percentage becomes 52; and if we derive an average from a combination of the preceding and the succeeding group, we get 56. We will replace our 44 with 52. In any case, it seems that we are here in a region of low percentages. The twenty-first and twenty-third groups have already been discussed. Doubtless 79 is too large for the former, and 53 too small for the latter. We

<sup>1</sup> The other places in the group are: Lincoln, Neb.; Reading, Pa.; and Lynn, Mass.

<sup>2</sup> See the *Report of the Comptroller of the Currency*, 1896, p. 82.

have no means of verifying or correcting the figures, and we will omit these points in this connection. If, now, we make the changes suggested at the fifteenth and seventeenth places, and replace the original figures with what we will call, for brevity's sake, the corrected figures, our curve changes in these places as shown in line *b* of Diagram I. In order to bring out its character more clearly, we will smooth it out by one of the processes known to mathematicians, and it becomes line *a* of Diagram II.<sup>1</sup>

DIAGRAM II



Inspection shows a succession of high and low points at fairly regular intervals. We find elevations and depressions at those places which are removed from preceding high points or low points, respectively, by about twelve or thirteen population groups of 5,000 each. That is, elevations succeed one another at intervals of about 20,000. Thus there are elevations at the beginning, at 18,000, 40,000, 60,000, and 90,000. Beyond this the curve is not detailed enough for these lesser observations.

<sup>1</sup> We weight the values of  $x$ , using the formula,

$$y_r = \frac{(x_{r+1} - x_r)(y_{r-1} + y_r) + (x_r - x_{r-1})(y_r + y_{r+1})}{2(x_{r+1} - x_{r-1})}$$

The percentages become :

1.	[66]	5.	61.6	9.	61	13.	62.6	17.	54.3	21.	....
2.	63.1	6.	58.7	10.	59.8	14.	58.5	18.	60.9	22.	77
3.	63.2	7.	58.5	11.	60.5	15.	54.6	19.	66.7	23.	....
4.	63.4	8.	59.9	12.	63.3	16.	53.6	20.	70.6	24.	78

It would be useless to try to read finer details in our data or our diagram. The last curve is as detailed a representation as we can hope for of the course of percentages, and it is from the character of this curve and the general trend of the grand sweeps that we may draw inferences. For convenience, we may here summarize the observations made:

1. The curve as a whole seems to contain two large sweeps, or sections, similar to one another. Each section shows a gradual descent to its depression, and then a more rapid rise to its end. The general level of the second large wave is higher than that of the first, and the curve as a whole shows a gradual ascent.
2. Each large wave is itself made up of a series of waves of lesser amplitude, showing a rough periodicity.
3. The curve appears to rise less rapidly in its later stage than in its earlier. Its rate of departure from the horizontal appears to lessen as it progresses. This tendency is not very marked, yet it is sufficiently evident.

What, now do these features mean? Like the physiologist, we have traced on a lampblack surface our line of social pulse-beats. What facts of life can we read in it? With full sense of the danger of making mistakes, and remembering the limitations of our data<sup>1</sup> we may venture to interpret the characteristics of our curve in the following law:

1. The proportion of credit-paper in the existing medium of payment, or exchange, increases on the whole, as a population grows.
2. After a community has reached a certain size, or a certain density of population, the *rate* of increase in the proportion of credit paper in the medium of exchange, decreases.
3. This increase, however, is not regular and steady, but broken and in some degree periodic. The progress is by leaps. These leaps are not a simple series. A growth of population over a considerable period shows a gradually falling use of credit-paper for a time, then a somewhat rapid increase. But within this large population unit are smaller units, each of which shows a variation of its own.
4. The actual proportion of credit-paper varies according to the industrial character of a community; but there seems reason for

<sup>1</sup> Especially that we are dealing with *retail* payments, and the assumptions (1) that these represent correctly the varying demand for medium of payment, and (2) that the volume of (retail) business varies closely as population.

thinking that the *relation* between growing population and demand for credit-paper is independent of industrial character.

The way we have been following is broken and faint and dubious. Were our figures all we had to rely on, we might hesitate to say that they tell us anything beyond the unrelated facts that such and such were the amounts and character of the bank deposits at the time selected. Even were our statistics full, even did they fall into unbroken line and regular relation, we might hesitate to believe the story they seem to tell, unless we could see some reason *why* it should be true. Statistics do not show causes, but facts. They tell us what is, not why it is. They are a tool of the scientific positivist. If we cannot see the rationale of a set of statistical data, we do well to insist on repeated presentations of them under different conditions, before we accept the empirical conclusions which they set forth. But the inferences from a single collection of data, even if they are imperfect, may be accepted if they are sufficiently supported by *a priori* reasons, if we have other grounds for believing in their probability. If we can say, there are such and such reasons why this must be so, we strengthen the case immensely.

How is it with our data? They are both meager and unrepeatable. But the inferences which we have drawn from them are supported by reasons founded on well-known facts of economic life. We must emphasize anew the point that we are dealing with communities in which the use of credit-paper for making payments is common; in which the credit habit, as we have called it, is well established. Such a community has a choice of means of payment, and no *a priori* prejudice in favor of any one. The choice depends altogether on comparative ease and convenience; and the community instinctively adopts the means which are, on the whole, least costly<sup>1</sup>. That this is the case with the ordinary American community is a fact which hardly needs proof; and it is becoming more true of every community, the world over, as the industrial and mercantile spirit becomes more intense and competition supersedes custom in economic affairs.

Premising this, we turn to ask what *a priori* support we find for the inference that the proportion of credit-paper in payments rises for a period of large increase of population. Our premise suggests a

<sup>1</sup>This statement does not contradict President Hadley's, that a community uses a dearer money material as it rises in the scale of economic life. (*Economics*, p. 184) The dearer material is, however, the more efficient and therefore the less costly.

reason at once. The credit habit being well established, the growth of population and business is accompanied with an extension and refinement of credit machinery, which render possible a more than proportionate increase in the use of credit-paper. As in other economic relations, larger, more powerful and more delicate instruments pay only where the demand for their products is large, so credit machinery of given size and fineness needs a certain population for its most efficient service. Increasing population means, moreover, greater density and greater solidarity, greater complexity of business relations and extended economic interdependence. These changes broaden and deepen the mutual knowledge and confidence which form the basis of all credit transactions. They thus stimulate the growth of credit while at the same time they render credit payments easier and cheaper by improving means of communication and transportation.

The increase in the efficiency of existing credit machinery cannot be secured indefinitely, however. There is a limit to its refinement, and the rate of increase of credit payments must ultimately decrease. The first argument to prove this "slowing up" of the increase of credit-paper in payments is found in the necessities of mathematical theory. The percentage of credit-paper in the medium of payment cannot exceed 100; but the population of the group to which the highest percentage belongs may be many hundred or thousandfold the smallest group. To speak algebraically, the value of  $y$  in the curve cannot exceed 100; that of  $x$  may be indefinitely large. Hence, the curve must tend to become parallel to the axis of  $x$ . In the second place, the necessity of mathematical theory is supported by that of practical economic life. As population grows, the proportion of people of small incomes increases. But the small incomes mean purchases of small amounts at a time and, therefore, less use for banking. If retail trade is much subdivided and numerous retail shops are scattered throughout the community, the habit of making small and frequent purchases is stimulated. People do not buy ahead more than they must. In Germany, for example, where retail shops of every kind are found in nearly every block of houses, and sell quantities of their wares that to Americans seem ridiculously small, no housekeeper need buy necessities in amounts that exceed the needs of half a day, at most. The ease of buying at any moment just what is needed promotes small and frequent purchases, and stimulates ready money payments. What influence "department stores" will have on this habit is an interesting question.

There is, too, a growing tendency to shorten the period of payment of wages and salaries. Hence the recipients get smaller sums at a time and the disbursement of money is less difficult. Many who bought on credit when the wage, or salary, period was a month, or a quarter year, will buy for cash when the period is only a week; and the payments being smaller, money is more convenient than checks. This greater use of money as incomes become smaller, or are more frequently paid, is a matter concerning which it is very difficult to get any direct evidence. From one source, however, we get a little light. The smaller purchases and payments necessitate a greater use of money of the lower denominations. Now there is some evidence that the proportion of these denominations becomes greater as population grows. Mr. J. B. Martin, writing of the circulation of Bank of England notes between 1844 and 1878, remarks:

There is no material alteration in the demand for bank notes of intermediate values, but in the case of those of the highest and lowest denominations the change is very remarkable. The circulation of £5 notes here is seen to have doubled itself in actual volume, and to have risen 12 per cent. in its ratio to the total circulation, while the circulation of £1,000 notes has diminished by more than half in actual volume, and 12 per cent. in its ratio to the total circulation. . . . There can be but little doubt that the increase of banking facilities has tended to the settlement of all but very small accounts by check, but the increase of population, the greater amount of business done, and, I hope we may add, the greater prosperity of the masses, have caused a still more rapidly increasing number of these small accounts to demand their settlement by bank notes.<sup>1</sup>

Similar evidence could doubtless be produced from the history of our own currency. Support of our thesis is found, thirdly, in the method of settlement of clearing-house balances. In New York, for example, money is used to a larger extent for this purpose than in many smaller places. At the time when statistics concerning credit-paper in deposits were secured, the statistics of clearing-house operations were asked for, including the method of settling balances. The returns show<sup>2</sup> that a larger proportion of the balance was paid in money in New York city than in most of the smaller cities. New York used \$2,971,000 in United States notes, and \$3,950,000 in United States currency certificates to settle her balance of \$6,921,000 on the day in question.

<sup>1</sup> *Journal of the Institute of Bankers*, vol. i. p. 288.

<sup>2</sup> See the *Report of the Comptroller of the Currency*, 1896, p. 97.

Atlanta, Denver, Louisville, and many other places paid their clearing-house balances entirely by manager's checks. Yet it is in New York city that credit machinery is most delicate and extended. The explanation is very simple. The more complex and delicate the credit machinery the larger the *minimum* debt which it will pay to discharge through it. In a small place, with a single bank, whose bookkeeping is simple and whose office expenses are small, it may pay to handle checks for so small an amount as a dollar, or even 50 cents. There is no clearing house to go through, no duplication of transfers and other records. The case is quite different in the great credit centers. The credit machinery of New York is too costly to use on sums so small. It is easier and less expensive to make such payments in money. And we cannot insist too strongly on the point that a commercial community will always choose the least expensive method of payment. Another bit of evidence is found, perhaps, in the diminution of the percentage of credit-paper in bank deposits for the United States since 1881.<sup>1</sup> The writer has criticised the opinion that this falling off has been taken to mean a permanent diminution of the use of credit. We probably find the true explanation in the thesis we are now discussing. We may have been passing through the depression of a wave of our curve.

Interesting as are the first two conclusions drawn from our statistics, it is the third which is, perhaps, most remarkable. This is, that the growth of the use of credit paper in payments has a periodic character. Are there any logical reasons in support of the statistical evidence? Or must we look upon the upward and downward course of the curve as a curious incident, an accident of these particular data, and of no significance? We must emphasize anew our general principle, that when a community has a choice of means of payment, it will select the mode, or combination of modes, that is least costly. Let us suppose the case of a community of given size and volume of business. Its paying medium consists of money and credit-paper. There is a certain amount of ready money directly used, a certain amount used as a basis for the emission of credit-paper, and a certain amount of credit-paper is actually used from day to day. Population and business may increase, for a time, without making necessary an increase in the amount of money used directly, or to support the credit system. The existing money basis may be made to serve, for a time,

<sup>1</sup> See this JOURNAL, March 1897, p. 173.



as basis for an extended credit, by using a more refined credit system, a more complex and delicate credit machinery. Ultimately, however, the need for still more paying medium must be supplied in some other way.

Moreover, there comes a time in the growth of a community, when the difficulty of using credit payments between its center and its outskirts is as great as it was between two nearer neighborhoods, before the population became large and dense enough to admit of a highly developed credit system; and the expense of such a credit system in the thinly settled portions of the community is too great to justify its maintenance. It is cheaper to use more ready money. There comes a time, too, as we have seen, when there occurs a rise in the minimum amount for which it pays to use the existing credit machinery. This minimum can be reduced again only by an extension of the credit machinery through the investment of new capital. But before this is done, a period elapses during which it is cheaper to use more ready money. The money can be obtained in just the amount needed, while the minimum amount of capital that it would pay to invest in credit machinery would produce a larger extension of the system than the situation demanded. When the amount of a certain kind of work is small, we do it by hand labor; when it is large, we use machinery. When our need for goods is small, we buy at retail; when it is large, we buy at wholesale. So when our need for more paying medium is small, we buy it as we need it—in the shape of ready money; when our need is large, we supply it, and anticipate further needs, by new investment of capital in extending the credit system. When demand for medium of payment presses on supply, the sequence of development is, then: first, the refinement of the existing credit machinery to its maximum efficiency, then a period during which it is less costly to supply the new demand by means of ready money, and, third, the expansion of the credit machinery by the investment of new capital. Of course, these stages of growth are not in fact distinct. Doubtless the money supply may increase, and the credit machinery be both refined and enlarged simultaneously.

There must, consequently, be a fluctuation, an alternate expansion of the circulating money part and of the credit part, of the medium of exchange. But this alternation is not simple. It is a complex movement of several series of fluctuations, of different sweep, or amplitude. Each community which uses credit is, in a measure, independent of

others in supplying itself with a medium of payment. As its need increases, it refines its credit system. When the point is reached where no further expansion is feasible on the basis of its internal means, it draws on the neighboring communities with which it forms an intermediate group, so to say, in the interdependent national trade organization. The undulatory movement is felt in time by this whole group. It in turn relies at first on itself to supply new needs, but in time must press on similar groups in the world's exchange area. Thus we should expect a series of undulations, included one within another. The period between the points when it will be necessary either to get more money or make a new investment in credit machinery will, therefore, be longer where the credit machinery is extensive. That is, the sweep of the undulations should increase as communities grow. This is in accord with the showing of our curve.

It is easy to find arguments in support of the fourth inference from our statistics, concerning the relation of the economic character of a community to its use of credit-paper. The data of 1896 show clearly that differences exist. In what we may call residence cities the percentage of checks is high.<sup>1</sup> This is true, too, of college towns, where the college body is an important part of the population.<sup>2</sup> Agricultural communities show larger use of credit instruments than do manufacturing centers of similar size.<sup>3</sup> The reasons for these differences are not far to seek. The population of the residence, and the college, towns usually includes a large proportion of people with means enough to enable them to have bank accounts. Moreover, the incomes of many, perhaps of most, such people is usually received monthly or quarterly; at intervals, that is, favorable to the use of banking. The banking habit is promoted, too, by the high average intelligence and knowledge of such a population.

In agricultural communities ready money is not always to be had. The farmers' payments come at intervals, in considerable sums, for the sale of his products, and not uncommonly in the form of checks on a bank in some neighboring center. It is usually easier for him to deposit such checks and open an account on which he draws in payment of his own purchases. In a manufacturing village, on the other hand, where the income of a large number of people is in wages, usually paid weekly,

<sup>1</sup> Such as suburbs of large cities, like Brookline, Mass.

<sup>2</sup> Such as Amherst, Mass.; Ann Arbor, Mich.; Evanston, Ill.

<sup>3</sup> Of course, we are discussing the retail data here.

the sum each receives is not large enough to make it worth while for him to deposit and draw on the amount; his creditors are near, easily accessible; and it is less trouble and expense for him simply to apportion the money among them. Besides, the large number of foreigners in our manufacturing centers have not acquired the banking habit to such an extent as the people in the agricultural and residence towns; and possibly the average of education, of the kind which develops this habit, is lower in the manufacturing centers.

All this has to do, however, only with the *absolute* extent to which the use of credit-paper depends on the economic and social character of a community. There is no reason for thinking that a society which was purely manufacturing, or purely agricultural, in short, homogeneous, would show for successive population groups any different law of development of the use of credit instruments from the one already set forth. For the communities of a purely industrial society, like those of any other, would choose the method of payment which for the moment was least costly. All that has been said about the changing expensiveness of the various media of payments would apply to a homogeneous industrial society. Hence, in the absence of positive evidence to the contrary, we are justified in thinking that the *development* of the use of credit-paper in payment as population grows, is independent of industrial character; although as we have seen, the *absolute* percentage largely depends upon it.

We turn now to a question of vital importance for the practical value of our argument. Our data are static. May we interpret them dynamically? They show the relative proportions of credit-paper used in payment by different population groups at the *same time*. May they be taken to show the mode of growth of the use of credit-paper by the *same* community at *different times*? Does the whole country, does the business world, behave in the way indicated? There is no reason for thinking otherwise. According as the population groups from which the percentages are drawn are more or less typical, the more or less closely will they yield points through which a typical group *must pass as it grows*. The whole country, or the whole business world, so far as credit relations permeate it, is, with its multifarious economic conditions, the true typical group. As it grows it passes through phases corresponding to those we have here observed. For we have seen that as the relative magnitude of different industrial groups changes, the change affects the proportion of credit-paper used, but not the course of development of the check habit.

Our conclusions then may be set down as general. They describe the course which the business world follows in meeting its need for a payment's medium, under existing conditions. Of course we cannot think that the curve which our statistics have furnished shows all the fluctuations of a curve for the whole business world. If we had statistics for the whole world, we should doubtless find waves of greater amplitude, periods of longer sweep, within which those of our data would fall as lesser series. The argument is that the *character* of the movement is revealed by our data and their graphic representation.

But of what practical value is all this? Does it throw any new light on the money question? It certainly does not tell us anything about the absolute amount of money that a community uses or needs. But it does throw some light upon the relative accounts used by communities of different size. To bring out its practical bearings, let us imagine a community with a fixed amount of money, a credit system well established, and a growing population and business. We neglect, as before, the demand for currency for wholesale trade. We may call the money needed for actual circulation,  $A$ ; that used as a reserve for bank credits,  $B$ , which furnishes the amount of credit paying medium that we will call  $C$ . Then  $A + C$  will represent the total volume of payments. In other words,  $C$  represents the bank deposits, or more properly that portion of the deposits which at the time in question is in active use. As business grows, a larger amount of payments medium is, of course, needed. In a modern community the demand falls first on the credit machinery. We go to the banks when we need money. The result will be a stretching, or refinement, of the credit system on the basis of the same reserve. In other words, the amount of money used for a reserve will be made to do the largest possible service. But by and by it will not suffice. Then, perhaps the community takes some money hitherto used in making actual payments.  $B$  becomes larger at the expense of  $A$ , and the new volume of payments, which we will call  $A' + C'$ , will be greater than  $A + C$ . But there is a limit to this process. Money cannot be supplied from the amount which is ordinarily used in making average payments. Soon the community must face a condition of stationary business and falling prices, with all the evils and loss incidental thereto. It is possible that a supply of new money is available at a price, but this price may be so high that there is less social loss in permitting the price level to fall

for a time, than in paying the price for a new supply of money. There comes a turning point, however, when the reverse will be true. Then the community will purchase more money; there will be a comparatively sudden rise in the relative proportion of money payments as compared with credit payments.

The supply of money would not, therefore, be steady, even apart from the vicissitudes of mining. If gold and silver mining were of a character such that a steady supply could be relied upon to meet the varying demands, we still would find periods of sudden increases and relatively sudden decrease of the volume of metallic money as against the volume of credit payments. We appear at present to be passing through a period of relative increase of metallic money. The past twenty-five or thirty years has been a period of relative increase of the use of credit payment. But the credit machinery has apparently been strained beyond the point where the existing amount of metallic money constitutes an adequate reserve. The world, therefore, was confronted with a régime of falling prices. That this fallen price level has been a great hardship to many, there can of course be no denying. But if our reasoning is correct, it must be true that the world has suffered less from the fallen price level than it would have suffered by changing its policy and increasing the volume of metallic money. Otherwise it would have done so.

If these conclusions are correct, they suggest certain matters of importance. It would appear (1) that the world will get a new money supply when it really needs it. It would seem (2) that an artificial increase of the supply of money by such devices as bimetallism would only be a temporary expedient. It would not change the law of the growth of the relative volumes of credit payments and specie payments. It would simply substitute a higher price level for the existing price level for a time. It would seem (3) that an artificial stimulus of the credit machinery is also undesirable because it hastens the time when the community will need a larger amount of metallic money in order to avoid the evils of falling prices. We cannot here, of course, elaborate these points, but the argument of the article seems to point to their truth.

A few words may be added as to the light thrown by our data on the distribution of money. The phrase "distribution of money" admits of a double meaning. It may signify either the movement of money from place to place, or the division of the existing quantity

among different countries or groups of people. It is in the latter sense that the subject has always roused the greater popular interest, but it is in the other sense that distribution has received the fuller scientific treatment. The classical theory is a law of movement, not of apportionment. It tells us that the gold flows from areas of high price-pressure to those of low price-pressure, but it says nothing about the relative amounts, or about the composition, of the exchange medium used by different communities. How much money a community uses, absolutely, or in comparison with other communities of the same general economic character; what is the composition of its medium of payment; what proportion of its payments are made with money and what by means of credit; and how, as a community grows, the constituents of its medium of exchange alter with reference to one another, are questions of much interest and importance which the classical theory does not touch, and to which our existing knowledge offers unsatisfactory answers, if it offers any at all.

Our curve, if inverted, shows the course of the increasing money supply for growing population and business. Its progress is the counterpart, or complement, of the credit-paper portion of the payments medium. It is clear that the ratio of increase of money is by no means one of simple proportion. Indeed, the curve makes it evident that for a time the amount of money may relatively decrease with population and business growing. This, of course, is a well-known fact. But in no case does it appear that expanding business calls for a steady and proportionate increase in metallic money. The amount may be less or more than proportionate and is never steady in its growth.

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## IRON ORE MINING IN MINNESOTA.<sup>1</sup>

THE iron ore mines of Minnesota, so far as they are developed, are situated in St. Louis county, about midway between Lake Superior and the boundary line of Ontario. They are located in two ranges, which are about twenty miles apart and extend in an easterly and westerly direction; the more southern of the two is the Missabe, the other the Vermillion Range. The ore deposits do not stretch in an uninterrupted body across the country, they are scattered along in groups, at irregular intervals; long stretches of non-merchantable ore being sparsely interspersed with groups of rich mines. On the Vermillion Range two groups of mines are now in operation; one at Ely and the other near Tower, on the east shore of Lake Vermillion. The mines on the Missabe Range are centered around the towns of Biwabik, McKinley, Sparta, Eveleth, Virginia, Mountain Iron, and Hibbing. A number of new mines are being developed near Sharon and Buhl. All mines on the Vermillion Range are underground, ranging in depth from five hundred to one thousand feet. There is no mine over two hundred and fifty feet in depth on the Missabe Range, but quite a number are surface or daylight workings. The way in which the ore from such mines is extracted differs materially from the old practice of mining underground deposits; two systems are in use, milling and steam shovel work. The latter is conducted on the same plan as the work in an ordinary gravel pit, with the exception that first the overlaying gravel and sand is stripped off the ore body. The ore is shaken loose by powder blasts, and loaded by steam shovels into railroad ore cars. In order that this system of work shall be economical, there must be no delays. The milling system is resorted to in all mines where the ore body lies at

<sup>1</sup> Reference is made to HORACE V. WINCHELL'S *Minnesota Iron Mining, Economically and Statistically Considered* and the *Seventh Biennial Report of the Bureau of Labor of the State of Minnesota*.

no great depth from the surface, and where, for various reasons, steam shovel work is not advisable.

The essential features of the milling system are, first, the removal of the overlying-ground and the sinking of hoisting shafts in the side walls to the bottom of the ore deposit. Drifts and cross-cuts are made from the shafts through the ore body, and numerous raises are cut to the surface. The raises are timbered and provided on the lower end with proper appliances for loading the ore into tram-cars. The ore on the surface is loosened by blasting and falls down the raises. At the bottom it is drawn out and conveyed to the shafts, where it is hoisted to the surface. This system of mining is very economical and requires very little timbering, aside from that of the drifts, cross-cuts, and raises.

All the ore from the Vermillion Range, and much from the Missabe Range, goes to the docks at Two Harbors; the remainder is taken to West Duluth, or to Allouez Bay, near West Superior. The year 1900 was marked by its great activity in iron ore production. The year's shipments, from all Lake Superior mines, amounted to 19,059,393 long tons, and the Minnesota mines contributed a little less than 50 per cent. of this amount. The ore docks mentioned above received and loaded, during the season, 9,465,355 tons of ore; 7,809,535 tons came from the Missabe, and 1,655,820 tons from the Vermillion Range. Last year's production showed an increase of 1,067,469 tons over that of the preceding year. Three railroads divide the transportation of the ore from the mines to the docks, and the figures best give an idea of the heaviness of the traffic. One mine of the Missabe Range loaded and shipped last year 14,000 tons of ore in one day; that is to say, within twenty-four consecutive hours. Four steam shovels were at work scooping the ore from the stock piles into the railroad cars. Five hundred and sixty cars of twenty-five tons capacity and eleven locomotives were required to move that quantity. An ore train generally is made up of one locomotive, fifty-one ore cars and one caboose, and all the cars and locomotives coupled together



would have made a train two and one-half miles long. Since last year, however, ore cars of thirty-five and fifty tons capacity have come into use. The total amount of last year's production, loaded in cars of twenty-five tons capacity, would have required 378,614 cars, and 7,424 locomotives to move them. They would have made a train 1,816 miles long. Bearing in mind that lake navigation generally lasts but eight months of the year, and that with the close of navigation all ore movements by rail come to an end, it will not be surprising to learn that ore trains have precedence over any other train on the road.

The great bulk of the men employed in the mines, seven to eight thousand, are foreigners. Mr. John Pengilly, general manager of the Chandler Mine at Ely, says in a description furnished to the Geological and Natural History Survey of Minnesota, 1896-1898: "There are not more than 10 per cent. of our men who speak the English language, and not more than the above number who have the remotest idea of mining." Nearly 40 per cent. of all so-called miners are Finlanders; another 40 per cent. are Austro-Hungarians; Italians form about 8 per cent. of the whole, and the rest are American, German, Scotch, Swedish, Canadian, Welsh.

Each of the two principal classes present distinct features of interest to the student of political economy. The Finlander, as a rule, is a strong, well-built person, all muscle and bone, and from childhood used to hard work and meager fare. Reared under adverse circumstances, and under an unsympathetic government, he came to this country buoyed by the hope of bettering his condition, and to enjoy the free exercise of political rights. It is his ambition to become a citizen, and one of his first acts, as soon as an opportunity is presented, is to declare his intention of naturalizing. According to the moral influence of his surroundings, the character of the Finlander as a citizen will be determined. We find the best proof for this in relative conditions of the second oldest mining town of both ranges—the town of Ely, on the Vermillion Range.

The Chandler mine was opened in 1888, and the Pioneer

started up the following year. Prior to this Ely was practically unknown. Today there are five mines in operation around Ely, giving employment to about 1,300 men. The town has a population of 3,700 inhabitants, which includes nearly 90 per cent. of the mine employees. There are no company dwelling-houses, boarding places, or stores, and the employees, when not on duty, are free from restraint by the company.

Of the total number of mine workers at Ely, 40 per cent., or about 520 persons, are Finlanders. A Finnish national temperance society of 350 members is maintained principally by mine employees. They have a fine, steam-heated hall, lighted by electricity, and with a seating capacity for 500 people. Weekly meetings and occasional entertainments are held, and the society, in addition to its efforts to elevate and improve its members, maintains a sick and death benefit feature. Mr. Pengilly, who has been living at Ely since the opening of the first mine, says that the beneficial effect of this society upon its members cannot be overestimated; that its influence has helped to reduce the number of accidents, incidental to the hazardous occupation of mining; the companies obtain better workmen, and the families of its members are lifted to a higher social standing. Of ten graduates, comprising this year's class, four were children of Finnish parentage. Many Finnish miners invest their savings in farm land, working on the farm during summer and fall, and returning to the mines for the winter; continuing thus until they have cleared off all incumbrance from their future homesteads.

The Austro-Hungarian, a man well built and by nature fitted for hard work, shows different characteristics. He is not as ready to become assimilated, his thoughts linger more in the wild Pushtas of his far-off country, and it seems to be his dream to get enough money to go back there to live. There are, of course, many exceptions to the rule. Single Austrians will club together and hire one of their country-women to do the house-keeping for them, they buying the provisions, for which each one pays his share, and all surplus money thus saved goes into

the stocking or bank, for the purpose already indicated. The sanitary conditions under which they thus live are open to much improvement; but they make, in a general way, a good labor stock, which, particularly in dull times, will stand much driving and pushing. An effort is being made of late, at different mining towns, to introduce temperance features into the beneficial societies maintained by the Austro-Hungarians.

Of the third large class of mine workers, the Italians, it is to be said that they are not of such strong physique as the Finlanders or the Austrians, but they are persistent in their work; and, as one mining captain put it, "they do not take such big shovelfuls as the others do, but they pick away, and when the day is over I find that they have done just about as much work." They are, however, better adapted to surface work, and prefer to labor in places where the sun is shining upon them. The man from northern Italy is, according to the statements of mine officials, docile and very willing to work, and in good times, with high wages and plenty of work in sight, they are a better class to get along with than men of other nationalities. The south Italian is certainly frugal and saving, so much so, indeed, that a dozen of them will huddle contentedly together in sleeping quarters which, under ordinary circumstances, would be hardly sufficient for half that number. They believe in the "stocking" savings bank, and their ambition leads them to dream of a banana push-cart in the near future, or ownership of a grape patch in some southern country.

The sturdy Cornishman is considered the mainstay in all mines. He is an experienced, cool-headed miner, reliable, temperate, and industrious. Out of this latter class come the greater number of mining captains, foremen, and bosses. Other nationalities have too small a representation among the miners to be specially discussed here.

The conditions of mine work on the Missabe Range, as has already been stated, differ in many respects from those of the Vermillion Range, and their effect upon the social conditions of the employed is very observable. On the latter range all mines

are underground, and offer a chance for all-year, steady work; which in itself is a great inducement to married men to settle down and become residents of the mining town.

Underground mines continue their operations after closing of lake navigation, the winter's production being deposited on the surface for future shipment. But things are different on the Missabe Range; here we find many open-pit or surface mines. They are worked during the navigation season only, which at best is only seven to eight months, and the men are forced to idleness for the remainder of the year, or have to hunt work in the logging camps on the range. Other mines, which are worked by the milling system, reduce their working force with the advent of winter, and they naturally give preference to the married men. Moreover, taking into consideration the fact that the mines on this range are as yet in a state of development, it is obvious that the inducements for married miners to settle down are not very great; and this, together with outside influences, has created a disposition of unrest and an inclination to shiftlessness among miners; it has brought forth the tramp miner.

The latter is a great source of complaint from mine managers. They say that conditions had become so unbearable to them that they were compelled to adopt strict rules relative to observance of working time and payment of wages. One mine superintendent said:

The habit of giving to private persons orders on their pay had become such a nuisance that during some months we had to handle over one thousand of such orders, of which a great percentage had been given to saloon-keepers; yet we had only about 400 men on our pay roll.

The Austrian is in the habit of celebrating every holiday on his calendar, and as they did not think it necessary to give us previous notice of their intention, we found on many a morning our working force so crippled that we had to shut down altogether for that day. So in order to protect our own interests, we gave strict notice that none but legal holidays would be recognized.

Another great annoyance is the disposition of single men to quit work at any time, knowing that they again will find ready

work

employment at some other mine or in the lumber camps. The slightest provocation, or the desire to go on a spree, is, as mine officials say, a sufficient inducement in times of plenty of work and good wages to quit a job, and if such men cannot find employment again under their own name they will hire out under an assumed name. All mining concerns have one monthly pay day, and many of them have adopted the rule that anyone who wants to leave their employ has to give ten days' notice, and settlement for back wages will be made only after expiration of such time.

The chances for beneficial recreation and elevating intercourse are but meager in mining towns, and unmarried men are too much at the mercies of the saloon. Too much money, which otherwise would be saved, is thus expended in society injurious to both health and morals. It must be stated, however, that time will also change this condition; that with the development of the mines on the Missabe Range, chances for all-year work may become better, and that steady, married workmen will replace the tramp miners.

Noteworthy mine settlements are already established at the Fayal mines near Eveleth, at Sparta, and at the Elbe mines, near McKinley. These properties are maintained by the interested mining companies, which also take care of the sanitary regulations. The town of Fayal is a very attractive place; over five hundred miners' families live in company houses; some of them have bought their homes, paying a small rental for the land, and the surrounding grounds are laid out in gardens or lawns, which help to make the place cheerful, attractive and home-like. Here, as in all similar places, no stores nor saloons are tolerated.

Wages for mine workers have steadily increased during late years; this will be seen by the following table, which has been secured at different mines of both ranges:

TABLE

	1896	1897	1898	1899	1900	1901
Miners - - -	\$1.83	\$1.77	\$1.86½	\$2.00	\$2.20	\$2.42
Trammers - -	1.61	1.54	1.81½	1.87½	2.00	2.08
Underground labor- ers - - -	1.82	1.70	1.77	1.86½	1.80	2.10
Surface laborers -	1.40	1.34	1.48	1.56	1.75	2.10
Contract workers	.....	.....	.....	.....	2.35	2.52

The State Bureau of Labor, in its seventh biennial report, gives the following data :

	1899	1900
Skilled labor - - - -	\$2.80	\$2.91
Miners - - - -	1.93	2.09
Trammers - - - -	1.79	2.08
Underground laborers - -	1.74	1.97
Surface laborers - - -	1.75	1.98
Contract workers - - -	2.09	2.16
General average - - -	\$1.89	\$2.07

Mining is classed by insurance companies as a hazardous occupation. The chances for injuries in a mine are manifold, and they come in most instances unforeseen, and in spite of all watchfulness and care. A small quantity of falling ore or rock will suffice to crush a person's limbs, and the careless handling of explosives accounts for a number of mine casualties.

The system of contract work, it seems, has also something to do with a great number of fatalities, incidental to mining. The desire to make big wages is an inducement for workmen to take chances, which, under other circumstances, they would not assume. Foremen and officers are ever on watch, directing the men in their work, and it is an established rule in mines that, first of all things, men must look out for their own safety ; but a little too much ore may be taken out of a place before the protecting timbers are put up ; men may return to their work, after a blast, before the person in charge has examined the roof overhead, and this carelessness may result fatally to the workmen :

The inspection reports for the years 1898, 1899, and 1900, as

compiled by the State Bureau of Labor, give the following figures relative to accidents :

	Mines	Men	Fatal	Serious	Minor acc'ts
1898 - - - - -	27	4,431	18	39	169
1899 - - - - -	30	6,645	34	71	316
1900 - - - - -	33	7,929	39	41	363

It should, however, be mentioned that two explosions alone were the cause of fifteen fatal and three serious accidents during last year. The fact, furthermore, that some mining companies report every slight bruise or cut, which may involve a disability to work, of one or two days only, it seems, has to account for such high figures in the accident reports.

All mining companies have arrangements made for medical treatment and care of their men in case of injury or sickness, and as a result of this, spacious and fine hospitals have been built in some mining towns near which a great number of men are employed. Prominent amongst them are the hospital at Ely, the company's hospital at Fayal, and the one recently opened by Dr. More at Eveleth. The latter is modern in every respect, and has space for forty beds, besides a few rooms for private patients. All mine employees have to submit to the deduction of one dollar per month from their wages, and they receive, as an equivalent, free medical treatment either at the hospital or at their homes, if injured or sick, and the hospital staff will minister also to the miners' families without looking for extra compensation, except in cases of childbirth, etc.

Benefit clubs have been organized at many mines. There is, however, no uniformity in their features, but all have for their object a weekly payment to any member who, by accident, has been disabled, and a sum of money in case of total disability or death as a result of an accident.

The efforts of the Chandler and Oliver iron companies to provide at Ely a place of recreation for their employees should also be mentioned. At beautiful Long Lake, near the Chandler

and Pioneer mines, is a strip of land four acres in extent, leased by the Chandler Iron Co., and this tract, which is nicely wooded, has been transformed into a park. Bath houses for both sexes, a grand stand, a pavilion, and other booths, have been built, and the families of the Ely miners here have an opportunity to while away the hot summer days. The mine managers, who jointly carry all expenses for the maintenance of this park, deserve high credit for this piece of humanitarian work.

JULIUS MOERSCH.

ST. PAUL, MINN.



## NOTES.

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PROMPTED by the marked success of the Commercial College at Leipsic a new institution for higher commercial education has been opened at Frankfurt a. Main. This is the Akademie für Sozial- und Handelswissenschaften, which began its work October 21. The institution differs from that at Leipsic in that it is entirely independent; the promoters of the Frankurt Akademie considering that close connection with a university is somewhat detrimental to the peculiar work of commercial education. At the same time both institutions require preparatory work equivalent to that required for entrance to the universities.

The academy is established under the joint auspices of the city, the Institut für Gemeinwohl, the Chamber of Commerce, and the Polytechnic Society, which have together granted an annual income, in addition to fees, of 70,000 marks.

The scope of the school is somewhat broader than that of the Leipsic school in that it attempts to provide courses especially suited for those in government service as well as for those engaged in commercial pursuits. At the head of the institution is Dr. Andreas Voigt, well known as an enthusiast over commercial education. Among the permanent instructors are to be noted Dr. Pohle from the University of Leipsic, who lectures on economics; Professor Burchard from the same university (commercial law), Dr. Paul Arndt (commercial policy), R. Lambert, from the Leipsic Commercial College (commerce), and Dr. von Moellendorff, formerly German consul (commercial geography and consular system). Other professors from neighboring universities, and some public officials assist in the instruction, so that the faculty numbers twenty, with the announcement that others will be added.

The attempt thus to establish an institution of higher learning independent of the existing universities is a somewhat interesting innovation. A professor in a neighboring Prussian university, in a conversation with the writer, characterized the new school as a "mock

university." In general, however, the plan has been well received and the attendance is certainly gratifying. On the opening day 302 students had registered. Of these 235 were hospitants, 28 regular students, and 39 hearers.

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#### WAGES AND INTEREST AS DETERMINED BY MARGINAL PRODUCTIVITY.

MR. PADAN's energetic attack on my theory of distribution in the JOURNAL OF POLITICAL ECONOMY for March, 1901, raises one principal question and a number of secondary ones. A reply which should cite and answer all of the subordinate questions would have to be very extended. As a rule it is my preference to refrain from replying to criticisms until both my theory itself and the case against it shall have been more completely presented. There is taking shape a volume, the purpose of which is to afford a brief outline of the static laws of distribution thus far published, and also such an outline of dynamic laws, as is needed for completing the theory in its main features, and making it more fully interpret the facts of life. This work may meet a number of objections which have been urged against the static theory as it stands alone.

The present volume has indeed tried to describe the general nature of the dynamic forces which act in distribution and their relation to static forces. The sixth, twenty-fifth, and twenty-sixth chapters of the book are devoted largely to this subject, and a reading of them will remove a certain misapprehension which is likely to exist in the minds of those who, without having read them, have seen the concluding part of Mr. Padan's article. In this part, by way of criticism of my view, he states that "the rates of wages and interest at any time are the result of the play of dynamic forces," that "they enjoy no immunity from change,"<sup>1</sup> that "the determination of the rates of interest and wages is a fascinating problem, for the reason that it is a *living*, ever changing problem," etc. The implication is that I have treated these rates as though in actual life they were fixed and unchanging, and have forgotten that, as Mr. Padan says, dynamic forces "both dominate the actual rates and exercise control over that real but elusive center of movement, the so-called standard about which the daily rates are ever

<sup>1</sup> JOURNAL OF POLITICAL ECONOMY, vol. ix. pp. 189-190.

fluctuating."<sup>1</sup> This sentence is a good abbreviation of what I have said on this subject. Whatever may be the shortcomings of my theory a neglect of dynamic elements in the problem to be solved is not one of them.

The chapters referred to may be trusted to make it clear that the description which Mr. Padan gives of a static state as "an instantaneous photograph of a dynamic period at any moment"<sup>2</sup> does not apply to the condition that is described in the work under criticism. The static level of the ocean would not, in my view, be well represented by an instantaneous photograph of the waves. Mr. Padan's main contention, however, is not dependent on any issue concerning dynamic forces. He claims that the law of final productivity, as I have presented it, assigns to labor and capital, as static incomes, amounts which together must exceed the total product of industry. In a certain diagram I have represented this total product by an area and the amount of wages, under static conditions, as a part of this area, leaving a remainder which must equal interest, if the contention that a static adjustment leaves no profits to the employer and imposes no losses on him is, in fact, true. Mr. Padan asserts, first, that the area representing this remainder is not so drawn that, independently of the question of profits and losses, it must equal interest. It represents what is left in the *entrepreneur's* hands after wages are paid, but the figure does not in itself show that the capitalist is destined to get this remainder. He asserts, secondly, that the amount assigned to wages in the figure is an exaggerated amount.

In a perfectly static state would wages and interest be accurately determined by the law of final productivity? As so determined would they together equal the whole product of industry? Would each of them be the leavings of the other? These are the essential questions at issue. My argument is an economic one and could be complete even if the diagrams which illustrate it were taken entirely out of the book. Moreover if diagrams were used, they might be confined to illustrating the direct action of the law of final productivity—the action which, in this case, fixes wages—and might omit all reference to the significance of the area which, in this case, is residual. There is no need of so drawing this area that, *from the manner in which it is drawn*, it shall appear that it must measure interest.

The conditions of the static state require that labor and capital

<sup>1</sup> P. 190.

<sup>2</sup> P. 187.

shall get the whole product of industry, and I do not understand that Mr. Padan denies this fact. The important part of his criticism is that which tries to show that my method of determining wages by a direct application of the law of final productivity gives an incorrect result, and that, when I use the same method in determining in a direct way the interest on capital, the result gained is again incorrect. This law of final productivity, as he thinks, exaggerates both of these incomes, and causes the sum of them, as thus determined, to exceed the whole product of industry. Of course, then, what is left after one is paid would not equal the other.

The theory under criticism runs thus: A unit of labor added to a working force adds a certain amount to the product that is created, and under perfect competition, and in the absence of all the changes and disturbances which characterize a dynamic state, it would get, as its pay, the amount of this addition. Every other unit of labor would receive a like amount. In a corresponding way a unit of capital added to a productive fund would add a certain amount to the product, and under the same conditions of perfect competition and the absence of disturbing elements, would get this amount as its share of interest. Every other unit of capital would get a similar amount. Wherever, if after paying all wages and interest *as thus determined* the employer should find that he had a profit remaining, or that he had suffered a loss, it would be an indication that the perfect static adjustment which is postulated in the theory had not been made. Mr. Padan's claim is that if wages and interest were actually determined in this way they would call for sums that would impose a loss on the *entrepreneur*, since they would take from him more than the industry would bring in; and he has used the diagram that illustrates the principle of final productivity in trying to establish this claim. By making the final increment of labor and that of capital large he obtains areas representing wages and interest which, taken together, exceed that which represents total products. He shows that if we construct a diagram in such a way as to represent the force of labor as divided into five increments, test the product of the last increment in the way that is proposed in my book, and then multiply the result by five, in order to get the product of the entire working force, we shall get a result that is larger than it would be if, in making the test, we divided the force into ten increments. Five times the apparent

product of the fifth increment is a larger amount than ten times the product of the tenth increment.

If, in like manner, we test the productivity of the capital by dividing it into five equal portions, ascertaining the amount that is apparently due to the fifth increment, and multiplying that amount by five, we shall get a total quantity that is larger than it would be if we divided the capital into ten parts, measured the product that is due to the presence of the tenth part, and multiplied this amount by ten. The two totals obtained by tests in which, on the one hand, a large final increment of labor is used, and on the other, a large final increment of capital, make together a grand total that is appreciably excessive, since it obviously exceeds the total product of the labor and the capital.

If the mathematical study had been carried farther, it would have shown that the amount of the excess of apparent wages and interest over total products varies directly with the size of the increments of labor and capital used in making the tests. If we made them equal to the whole amounts of labor and capital, we should attribute the entire product first to labor and then to capital, and the sum of the two incomes would be twice the product. As the increments are made smaller, the excess of the two incomes over products becomes smaller, and it practically vanishes when minute increments are used. A hundred times the product of the one-hundredth part of the working force plus a hundred times the product of the one-hundredth part of the capital would exceed the total product by a very minute amount; and if we used the thousandth part of each agent in making the tests, the result would give as near an approach to the utmost conceivable accuracy as an economic law ever needs to attain.

The truth to which Mr. Padan's reasoning would, if it were completed, lead is that in any application of the general principle on which the theory of value and the theory of distribution rest, which may be called the Law of Final Economic Efficiency, minute increments of the agent whose efficiency is testing need to be used. The law of final productivity of labor and of capital is one phase of the more generic principle, and the law of final utility of goods, on which market values depend, is another. If, in gauging the selling price of the supply of wheat, we withdrew a fifth of it, ascertained what the public would pay rather than be deprived of this amount, and inferred that the market price of the whole supply would be five times that amount, we should be gravely misled. Our estimate of the total value

of the wheat would be greatly exaggerated, and it would become accurate in proportion as we reduced the size of the increment the utility of which is the basis of valuation. Accurate estimates of the productive power of labor and capital also require the use of small increments, and in this case the approach to mathematical exactness which is made, as the increments are reduced, is more rapid than the reduction of the increments. A continuation of the graphic study would reveal this fact, since it is connected with the form of the productivity curves. Take the product of the one-thousandth part of the labor and multiply it by a thousand, and you get an amount that may not exceed the true product of all the labor by a millionth part. Get an equally accurate measurement of the product of the capital and add this to the amount which the former measurement gives as the product of the labor, and the sum will exceed the output of the industry by a sum that is as near to a mathematical zero as is necessary for any end theoretical or practical. If, for any purpose, the remaining nearly infinitesimal variation were of importance, it should be noted there are mathematical ways of eliminating it.

When in measuring the product of the labor, we use a large fractional part of the force as the basis of the test we get, as the product of this exaggerated increment, a quantity that includes, besides the true product of this labor, a certain excess, and this excess is, in reality, a part of the product of capital. So also in measuring, in a like way, the product of an exaggerated increment of capital, we get an excess that really is a part of the product of labor. Calculating either of the totals on this basis gives as the seeming product of one of the two agents an amount that equals that product plus a moiety of the product of the other agent. Add these totals and of course the sum exceeds the joint product of the two. The equation that we can legitimately make stands thus: The product of labor plus a part of the product of capital, if added to the product of capital plus a part of the product of labor, gives a total which exceeds the joint product of the labor and the capital. By reducing the size of the increments used in applying the tests to small dimensions we make the excess microscopic. On this point and all the minor ones to which Mr. Padan's article refers, I rely on the verdict to which a careful study of the theory itself will lead.

JOHN BATES CLARK.

## A GERMAN VIEW OF "WOMAN'S SPHERE."

DILETTANTISM in the kitchen and a sentimental regard for the traditional hearthstone must be met by co-operation and a consciousness of the historical development of the family. The German student of domestic problems, Lily Braun, has recently discussed them under the title, "Woman's Work and Domestic Economy." Her intensity reminds one of Charlotte Perkins Stetson, but she is far less radical, although it might be expected that German conditions would result in a greater reaction.

The author's insistence upon a decided change in modern methods of housekeeping is based upon her belief that:

The external form of the family has constantly varied.<sup>1</sup> The enduring element, in spite of the variation, has been the relations between man, wife, and child. Its depth and significance have developed in proportion as it has been freed from external conditions. "This freedom from hampering material circumstances does not mean, in the least, the dissolution of the family; it means, rather, the possibility of true family life." Lily Braun agrees tacitly with Mrs. Stetson that a "family unity which is only bound together with a tablecloth is of questionable value."

In tracing the history of woman's work, the author says:

Housekeeping (die Hauswirtschaft), as one commonly regards it, is the most conservative element in social life. It seems to be the rock about which the waves of scientific development and commotion rage, without breaking off more than a few bits. Yet, in reality, it is the mirror which reflects all the pictures of the outer world and throws light upon the history of civilization.

In pre-historic times when man received out of the lightning the precious fire and realized its significance he established the first hearth and made woman the guardian of the flame. While, in course of time, the hearth has been supplanted by the central heating system and the hundred and one hearthstone activities become specialized, the hearthstone idea has become so incorporated in the social creed that to disagree with those who believe the individual cook-stove is as necessary as the individual conscience, is to be accused of social heresy. The author's method of treatment shows her to be fully aware of her audience. She makes very plain the gradual growth of home industries to their culminating point in feudal times, and then

<sup>1</sup>*Frauenarbeit und Hauswirtschaft*. By LILY BRAUN. Berlin: Vorwärts, 1901. 12mo, pp. 31.

follows their gradual displacement up to the present, when cooking alone remains largely an individual occupation, and spinning, weaving, sewing, soap and candle making have all become developed and put outside—or taken outside—the home.

Among the poorer classes this specialization meant almost a complete destruction of the home in which the first looms crowded out the possibilities of family life apart from continued toil for the means of existence. Today, excepting in the “sweating” industries, the factories have done away with this crowding but the homes have not rallied; they are but temporary sleeping and eating places. “Deserted stands many a home of the poor; the little flame on the hearth—upon which will be heated the meal prepared the night before, when the man and his wife come back for a short rest at noon—recalls still the hearth fire of former times.”

In the houses of the rich little is done beyond personal service and cooking. And as a result of this change in woman's occupations in the home girls and women are free to undertake other work. Those who can afford this leisure betake themselves to idle pleasures or the arts, but the women of the poor must follow the machine into the factory.

It is, then, in this extension of domestic work that the position of the workingwoman becomes anomalous. She is forced into the struggle for existence alongside of man, but she is still supposed to fulfill her woman's function in the home as housekeeper and mother. Therefore, she becomes less than man's industrial equal because of dissipated energies in the two fields, and she becomes his greatest enemy. The increase in the number of married women in industry is added proof that the wheel still turns which was set in motion little more than a century ago. In 1895, 16 per cent. of the workingwomen in Germany were married; in Austria 24 per cent.; and in France 30 per cent.

The author brings out the effect of this factory life upon the lives of the children; the weakest come to bear the heaviest burden. “The more children a working woman has, the more her presence is needed at home, just so much greater is the need which forces her out to work.”

The position of the middle class woman is not much easier if they feel the necessity of entering any of the professions. They must still be compelled to be housekeepers, even though they have a servant. The constant distraction of the mind by the petty details of meals,



sewing, and sweeping is sufficient to render impossible any coherent scientific work. Here, again, there is a dissipation of energy, mental energy.

Frau Braun does not lay as much emphasis as she might upon the great loss to society which results from the modern domestic arrangement, a loss to the present through lack of organization, and a loss to the future through the effect upon health of mind and body. Yet, as a socialist, she necessarily realizes the bearing of this question upon the fundamental ones of social and industrial readjustment. She proposes a plan for co-operative housekeeping which is not at all novel upon this side of the water. The points of advantage for the working class are most evident where the care of children is concerned. Trained nurses, as well as trained cooks, would be regarded essential in her plan. In a large apartment house built for co-operative housekeeping the privacy of the family would still be maintained in spite of the disappearance of the private kitchen. Meals, cooked in the central kitchen, could be eaten in the common dining-room or taken to the apartments of those who preferred their own dining-rooms.

The means for undertaking such an establishment is discussed with a recognition of the present dependence of labor upon capital. The author suggests building and loan associations or interested capitalists willing to take the risk of investment.

The results of such a change are evident. When at home, working mothers would have time to devote to their husbands and children and to the cultivation of their minds and bodies. Frau Braun quotes Krapotkin :

The emancipation of woman does not mean the opening to her of the doors of the universities, courts, and parliaments; it means much more the freeing of woman from cook-stove and wash-tub and the establishing of a system which will allow her to educate her children and take part in the social life.

The student of social evolution knows that the small kitchen must go as did the small work-shop. This study from the German point of view has in it little that is original, but much which will bear repetition from now till the time when sentimentality gives way to necessity and the vitality of the word "home" does not depend so much upon the material surroundings of a family as upon the consciousness of a deep and significant relationship, eternally the same no matter how outer forms change.

CHARLOTTE TELLER.

A HISTORY OF THE LATIN UNION.<sup>1</sup>

THE world of letters in Europe has not allowed the work of the American universities to pass unnoticed; and rightly so for nowhere else has progress in recent years been so rapid. The University of Chicago particularly commends itself to the attention of economists both by its courses of instruction and by its publications, which reflect the work of the University. The latest of these publications has peculiar interest for us, since the subject of which it treats is essentially European—the Latin Monetary Union.<sup>2</sup> Many are the authors who have described, discussed, lauded, or criticised it, but one may say it still awaited its historian. That he has been found not in France nor in Italy, neither in Belgium nor in Switzerland, but in the United States is no occasion for regret on our part. It has only resulted in making the enquiry more impartial and not at all in making it less complete, for Mr. Willis has neither been ignorant of, nor neglected any of the sources which might be of service to him. I myself took great pleasure, while I was director of the French Mint, in opening to him its archives. I could testify, were not the book in itself sufficient witness, to the conscientiousness and the patience which he showed in mastering the original sources. He has read or examined everything, the official texts, the *procès verbaux*, the discussions, and even the articles in the reviews and the newspapers. Some of the chapters are models of analysis and synthesis. Such are those in which he has successively initiated the reader into the genesis, the progress, and the effects of this monetary syndicate which, inaugurated by the convention of December 23, 1865, has continued, despite all vicissitudes to the present time. A foreigner has need of great clearness of vision to distinguish in the causes of that international agreement between the influence of economic, and of political considerations. Mr. Willis has made manifest the practical difficulties which compelled us, thirty-six years ago, to reduce the standard of our fractional silver in order to check its exportation. The same necessity had been felt in Italy, in Belgium, and in Switzerland. The independent action of these states brought about certain differences of which speculation sought to take advantage at the expense of the circulating medium.

<sup>1</sup> Translated from the French manuscript by Henry Rand Hatfield.

<sup>2</sup> *A History of the Latin Monetary Union.* By H. PARKER WILLIS. Chicago: The University of Chicago Press, 1901.

The convention of 1865 in itself had no other object than to secure uniformity in the monetary systems of the contracting powers. But it is certain that Emperor Napoleon III., and public opinion as well, expected more from that agreement than was promised by its text.

For the theorists it was a first step and a long step toward the general unification of monetary systems. It was the *franc* beginning, as the *metre* had recently done, to conquer the world. Without doubt it was a pity to see the campaign open with the debasement of the very unit which they were ambitious to have accepted by the civilized world. The franc of 1865 (reduced to .835 fine) was no longer the original franc. But in addition to the fact that the *écu* of five francs (the French dollar) remained unaltered as the personification of the silver standard, as it had been defined by the law of 17 Germinal, an. XI, the triumph of the gold standard was announced as near at hand, and the twenty-franc piece (the Napoleon) appeared as its representative.

Our statesmen, whether economists or not, saw with satisfaction the prestige of France and the empire established by these monetary unions, which would bring others in their train. The public, aided by official eloquence looked on the Latin Union less as a remedy for previous difficulties than as a victory and a promise for the future.

Unhappily these expectations presently proved fallacious. The introduction of legal-tender paper in Italy and in Greece soon showed that at least two of our allies were preparing to play, in the family which they had just formed, the unwelcome rôle of poor relations. Then came the war with Germany, the defeats, the invasions, the siege of Paris, the mutilation of French territory, the indemnity of five milliards, and the commune. The notes of the Bank of France ceased to be redeemable in specie, and this situation bade fair to drag on for many years. Mr. Willis recalls all this without dwelling on it. He would have done well to call attention in passing to the extraordinary solidity which French credit exhibited in those tragic days. That our bank notes remained either at par, or very near it in the midst of such convulsions, that the payments on the public debt were not interrupted, and that France, as soon as Germany was paid, was able so promptly to secure needed revenues, is a spectacle not common in the financial history of nations. Bimetallism itself could derive some honor from such a crisis so well passed. But bimetallism was about to suffer a most serious malady caused by the depreciation of the white metal, and

everyone knows that despite all the efforts of its friends it is now dead. The Latin Union has survived only by transforming itself.

Mr. Willis has placed in a clear light the changes made in the original agreement of 1865, first by the supplementary convention of 1878, and later by that of 1885. The first provided for the downfall of silver by definitely prohibiting the minting of écus, the latter for the first time regulated, in the interests of France, the conditions for the eventual dissolution of an alliance of which we were bearing all the burden. France was invaded from day to day by the écus of Belgium and by those of Italy. Italy had escaped momentarily from forced circulation only to fall back again. Neither gold nor silver were longer to be seen in the peninsula, and because of its economic and financial difficulties the Italian government was led to interpret its obligations in a more and more elastic manner. Mr. Willis probably does not know how much advantage our neighbors reaped from the Bourbon piasters (Neapolitan dollars) which were always about to be recoined but which were always turning up somewhere untouched. The Eretrean piasters, too, after the victories of Menelik, fell back on the metropolitan banks. Finally, how shall one reconcile with the spirit of the original treaty of the Latin Union the decrees of King Humbert giving a preference to gold as a reserve in these banks? Such expedients gave all too good reason for the government of the French republic to take precautions for the future in regard to which the imperial government had been careless. Such was the aim of the difficult negotiations of 1885. The convention of 1865 has been compared to a marriage contract; that of 1885 has somewhat the form of a will. But to make one's will is not to die, and it is possible that the Latin Union will still live for a long time.

The changes which the Latin Union has undergone are described by Mr. Willis with much more detail than I could, or would wish to enter into here. The texts of the conventions which he gives *in extenso* in an appendix are almost superfluous after the minute analysis which he has made of them, and possibly he might have abridged somewhat without injury. The subject is not one which appeals to the imagination, and perhaps American students who read of the complicated developments will find it somewhat dry. Personally I have not for a moment received this impression; for where others may merely spell out proper names which mean nothing to them, I see reappear, as if conjured by an occult power, those statesmen and scientists all of whom

I have known well and many of whom were dear to me. To speak only of those whom death has already taken from us, there are the interesting figures of J. B. Dumas, the great chemist, of Michel Chevalier, the eloquent professor, of Emile Laveleye, the subtle orator, of Adolph Soetbeer, the indefatigable statistician. And among the ministers whom the Union has employed I may at least mention those of our own country, Esquirou de Parieu, Magne, Leon Say, Tirard, Peytral.

At times Mr. Willis, while reciting the complicated drama of the two standards, neglects to name the actors. Of the great international conference at Brussels in 1892 he speaks only briefly. Without doubt this is because the results of the conference, as was proper, were negative. Nevertheless, while reading what he has written, I see again the Palais des Academies, at the corner of the Parc Royal, the meeting place for our long deliberations; I see again, grouped according to countries along the green tables, the delegates who represented so many different governments, and first of all, more numerous and more impressive in stature and features, the delegates from America. They were Senator Allison and Senator Jones, Mr. James B. McCreary, President E. Benjamin Andrews, and Mr. Henry W. Cannon. Of all these men their colleagues of 1892 have retained the pleasantest memories. At first they spoke little, and we were astonished that the United States, having taken the initiative at the conference, had no program to submit to it. Later their reticence gave place to a less discreet attitude, and two whole days, in particular, were spent in listening to Senator Jones, the silver advocate *par excellence*, sound the beauties and the virtues of bimetallism. His eloquence was indefatigable. He turned facing now the French, now the Germans, now the English, apostrophizing each country in a ringing voice. His argument seemed to us only moderately scientific, but we admired none the less the dignity of his presence and the richness of his language.

It is to be regretted that this learned work of Mr. Willis could not have been published in 1897 as was originally intended. Circumstances have caused the manuscript to slumber for four years before seeing light, and when the moment came for printing it the author evidently found himself hurried. The recital ends a little abruptly, and after having informed us so fully in regard to the earlier events it passes too rapidly over recent occurrences. This defect in proportion is very noticeable when one comes to chapter XIX, and the author will pardon us for pointing out in the last line of this too

brief chapter an actual error. He says there: "Until France shall change her position there can be no thought of a new régime; of the improbability of such a change the unfavorable reception in Paris accorded to the bimetallic commission sent out by President McKinley affords evidence." The reference is to the final effort made by Mr. Wolcott and his colleagues, Gen. Charles J. Paine and Mr. Adlai E. Stevenson. These gentlemen were possibly received with some suspicion by the business world where the joint action which they urged on France was considered very inopportune and even somewhat wild. But of what could they complain? The president of the council of ministers was then the honorable M. Jules Méline, whose blindness in monetary matters was only equaled by his good faith, and who, deaf to the remonstrances of his wisest advisers, did not hesitate to promise the American delegates the absolute concurrence of the French diplomacy, and the French ambassador at London, it is said, was compelled to join personally in the manifesto which Mr. Wolcott was about to present to the British government. If England at that time had only guaranteed the reopening of the Indian mints, France would have been taken in the snare. In fact, the Bimetallic League was already exultant, and its fiery leader, M. E. Théry, ostentatiously wagered M. Yves Guyot that within a year the unconditional restoration, of the ratio of  $15\frac{1}{2}$  to 1 would be an accomplished fact. O, fond delusion! His mistake cost him only a breakfast of a dozen covers where a libation of  $15\frac{1}{2}$  bottles of generous champagne accompanied the funeral rites of bimetallicism, at last abandoned to its fate.

A final chapter, in which statistics are given free scope, deals with the important question of the stock of silver écus existing in France and the other countries of the Latin Union. There I shall be tempted to find fault with the extreme impartiality for which I just now praised Mr. Willis. He places side by side before the reader, leaving to him all the embarrassment of choice, the estimate of M. Ottomar Haupt and my own, which differ entirely. As he has himself shown the importance of this statistical problem, I would have been pleased had he explained, at least briefly, the two methods which led to such different results. M. Haupt bases his estimate solely on commercial statistics, which, as far as they concern silver and gold, are on their own confession entirely unreliable. The method of which I was originator has truly a more solid basis, and since the death of M. Haupt no one in France believes in the three or even

four milliards which he has so generously bestowed on us. France, I dare assert, does not retain two milliards in silver écus, including those of foreign coinage. I do not overlook the fact that our French mints alone, during the century just ended have issued, in écus, more than five milliards (exactly 5060 million francs). But under Louis Philippe (1830-1848) and again since his time, private enterprise has melted up many more écus than speculation has exported. Why? Because the progress of chemistry has revealed that under Napoleon, and even under Louis XVIII. there was put into the white coins without anyone knowing it, a little more silver than the law required (.903 on the average instead of .900), and also a little gold (0.8 per 1000). When silver bullion commanded a premium on the market the remelting of the five-franc piece, especially a heavy one, by aid of the new methods which science had put at the disposal of the refiners, could give two or three sous profit, and some considerable fortunes were thus gained.

This is how it happens that of the five milliards coined in French écus from the end of the eighteenth century until 1878 scarcely one and a half remained there in 1897. Then came the convention of October 29, 1897, of which Mr. Willis is not ignorant,<sup>\*</sup> but which he was unable to follow to its conclusion. This treaty, which increased by 130 million francs our quota of fractional currency obliged us to use for this new issue old écus remelted for that purpose. Indeed, there has already been officially destroyed about 100 million francs of these large silver pieces bearing the image of Napoleon I., Louis XVIII., Charles X., or Louis Philippe.

Marvel at the irony of fate and the blindness of man! At Brussels, or elsewhere, when the demand was made that France should still sacrifice her own interests to rehabilitate silver, she replied that for twenty years she had continually protected against any depreciation an enormous stock of silver money, and that the other states of Europe were far from being able to say as much. This argument has more than once closed the mouths of our adversaries. We can no longer say this, since even in Paris the remelting of the écus has begun in accordance with the terms of the convention of 1897. Furthermore, the ministry which has thus given the *coup de grâce* to the silver standard

<sup>\*</sup> The only diplomatic act concerning the Latin Union of which Mr. Willis makes no mention is the protocol of March 15, 1898, relating to the fractional currency of the kingdom of Italy.

without any real necessity, is the same Méline ministry whose chief showed himself ready for the worst acts of indiscretion for the sake of the greater glory of bimetallism.

The compulsory remelting of which I have spoken is not the only factor to lighten the burden of our stock of écus. The French administration periodically sends silver coins to our various possessions in Africa, especially Madagascar, and this silver never returns. Our situation in this respect will better itself gradually, and I, for my part, consider it less harmful, less disturbing, than Mr. Willis believes it to be. When he expresses the opinion that the Latin Union has proved a failure for those who formed it, he is right in a general way. However, our monetary system, since 1885, has not failed to bring us certain political advantages. The dissolution of the existing union would be less menacing to our finances than to those of Belgium and Italy. And as they well know this, it is a motive for maintaining a friendly attitude toward France. The pervading thought of Mr. Willis is that we shall never be able to recover our freedom of action. In one of the last pages of his remarkable monograph he says: "The Latin Union is doomed to existence in its present condition for an indefinite period." He need not pity us where we do not pity ourselves! Upon the whole for twenty years our monetary policy has often been wiser than that of other states which I could cite. And time, the great master, works for us rather than against us.

ALFRED DE FOVILLE.

PARIS.

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### OUR NEXT MONEY CONTROVERSY.

RECENT events have emphasized the necessity of a revision of our money and banking systems. The latter, in the words of Mr. Stickney, is no system at all, but simply a group of banks bound together by a very slender thread.<sup>1</sup> There has been a decrease in the national debt, and a piling up of a surplus which it is now proposed to use to still further reduce the government obligations, which must result in a decline in the amount of bonds now used for national bank circulation. In this connection a number of suggestions have been made for the modification of the National Banking system, and in some instances an entire repeal of the National Bank Act asked, in the hope of securing a complete and adequate system of banking.

<sup>1</sup> Speech at Milwaukee, October 16, 1901.



It is proposed that an asset bank currency shall take the place of the present national bank note. In this connection Mr. Stickney's suggestion for a central bank and branches, issuing notes upon commercial assets, has received wide discussion. But a question arises here, political in character, that will modify very decidedly the whole matter of banking currency. That question may be put in this way, Will the people stand for an increased banking currency in the face of the so-called high value and usefulness of the greenback? That this question is not academic, but actually pressing, is indicated in an editorial in the *Chicago Tribune*,<sup>1</sup> which says: "The people have full faith in the \$350,000,000 of national bank notes now outstanding. They are secured by government bonds. But if the national debt shall be extinguished and no bond basis remain for bank notes, then the bank will have to cease issuing notes. The people would have more confidence in one thousand millions of greenbacks based on the unfluctuating value of gold in the treasury than in \$350,000,000 of bank notes, based on the fluctuating value of bank assets. These assets are made up in part of securities and of industrials, which are above par one day and near zero the next day."

The writer of the editorial has failed absolutely to understand the full meaning of commercial assets, or the true basis of the banking proposition. Canada and Scotland, and Germany to some extent, have not found a currency based on assets to be such a fluctuating one as indicated in the editorial. In fact, there is nothing sounder than true commercial assets for bank notes, viz., the business transactions of a community. The writer has also evidently forgotten that a system of bank notes issued on assets would be accompanied by a provision for a guaranty fund and a system of redemption. He seems to think that the notes would remain outstanding just as the greenbacks do at the present time without redemption, except under panicky conditions. That gold, the reserve of the greenback, is difficult to secure at such times; is also lost upon the writer of this editorial.

The editorial, however valueless it is as a scientific suggestion of what is needed in the United States as a true money system, nevertheless indicates that a very wide-spread opposition exists to a further enlargement of bank note issues on any basis. This supposition is borne out in the attitude of the Illinois Bankers' Convention at Quincy; held recently. In this convention it was manifest that the bankers

<sup>1</sup> Quoted from *Commercial West*, November 2, 1901.

were by no means agreed as to the value of a currency-issue on banking assets. One of the oldest bankers in the state, discussing the matter, said :

We are living under systems of banking both national and state which have been tested as far as it has been permitted, and found to be both useful and safe. It is probable that these systems, as excellent as they are now thought to be, can yet be improved. But in attempting to do this let us not lose sight of the past principles and past experiences, and whatever we attempt let us take no chances of bringing about the return of the days when wildcats, red dogs, and stump-tail currency inundated the country to the great loss of the people.<sup>1</sup>

The president of the Bankers' Association following the speaker quoted above stated :

We may well study the lesson taught in the American Bankers' Association at Milwaukee in the addresses of Mr. Gage, Mr. Stickney, Mr. Eckles, etc. While some may not be willing to endorse all the methods recommended, it was a fearless and able occupancy of advanced courses, and will honor the men who blazed the way. It seems to me that the crying needs of the day are the gradual retirement of the greenbacks, the abolishment of the subtreasury, and an elastic system.<sup>2</sup>

Although the two addresses quoted above do not oppose directly the issue of bank notes on commercial assets, nevertheless it can be easily seen that there is no enthusiastic acceptance of a different method of issuing bank notes than that already in existence. Bankers are so well satisfied in many instances with the present system, and are so conservative that they hesitate to recommend anything that would tend to disturb the existing system. But it is very decidedly a question whether at the present time we are not simply holding off the entire issue. In 1896 the people of the country settled fairly well the question of monometalism. But there still remains to be determined a much greater question, viz., the continuance of the greenbacks, and the issue of bank notes in company with a decreasing national debt. What are you going to put in their places ?

In this connection Mr. Eckles, the ex-comptroller of the currency, in a speech before the Chicago Bank Clerk's association, said :<sup>3</sup>

It is not good economics to keep up a national debt, the interest on which must be paid by taxes from the people for the sole purpose of affording a

<sup>1</sup> Quoted in *Commercial West*, November 2, 1901.

<sup>2</sup> *Ibid.*

<sup>3</sup> Speech made October 22, 1901.

basis of circulation. We might keep our present bank-note circulation so long as the bonds outstand, but allow a percentage of bank notes in addition, regulated by a tax, and with a safety fund and proper redemption agency. Thus asset bank notes would be equally responsive to the varying interests of business at difficult seasons. For a time we might allow their use only in emergencies. We must reach asset currency by evolution, not revolution, as Mr. J. B. Forgan stated in a very able paper he read at the Bankers' Club the other evening. I feel confident we will see asset currency in this country some day. It will make a scientific substitute not only for present-day bank notes, but for our unsound and costly greenbacks, and for our silver certificates, which are nothing but warehouse receipts for a lot of poor silver stored away in a cellar somewhere in Washington.

The objections to the national bank currency may be summarized briefly as follows: First, the basis is a constantly narrowing one, decreasing as the national debt grows smaller. The answer to this objection is that the national debt is likely to remain as large as it is, and possibly even to increase, but when you remember that at the present time the total surplus for the year 1900 was 80 millions of dollars, it is difficult to reconcile the two statements. The second objection is the inelasticity of the system. The law of March 14th, 1900, modified to some degree the inelastic features, making it possible for a bank to secure an increased currency by the deposit of bonds without waiting a period of six months. But even now it is necessary to buy the bonds, send them to Washington and order your circulation, which takes from three to four weeks as a usual thing. Further than this it is inelastic in that the amount of bonds is limited. Third, in new communities the banks fail to increase their circulation beyond the minimum amount required by the law. The reason for this is that the capital tied up by the bonds can be used to better advantage by loaning it to borrowers. As a result new communities, where there is a good profit from interest on loans, find it difficult to secure the necessary banking currency. The bankers object to furnishing it under present conditions on the ground that it gives them no profit. This statement is borne out by the secretary of the treasury when he says that the net advantage to a banker issuing notes on 2 per cent. bonds is 1.5 per cent., on 3 per cent. bonds of 1908, a profit of .15 per cent., on 4 per cent. bonds of 1907, a profit of .12 per cent., on 4 per cent. bonds of 1905, a profit of .15 of one per cent., on 5 per cent. bonds of 1904, a loss of one-half of one per cent. These figures are

sufficient to maintain the contention of the banker. The problem must be met some way.<sup>1</sup>

Mr. H. D. Baker, in discussing this subject in the *Commercial West*,<sup>2</sup> indicates very clearly the difficulties of the problem.

The framers of the new currency law, in order to postpone the day when the country will have to choose between currency based on bank assets, and a currency consisting wholly of greenbacks or silver certificates, inserted, with the cleverness of a lawyer who wants to keep his case from going to trial, a refunding provision in that law. The 4 per cent. bonds of the government, which were to mature in 1907, amounted to 553 millions of dollars; the annual interest amounted to \$22,120,000. In the life time of these bonds, which would have been eight and one-half years, the interest would have aggregated 188 millions of dollars, but by the refunding operation which converted these bonds into a class having a life of thirty years, and paying 2 per cent. interest, the aggregate amount of interest payable before maturity mounts from 188 million dollars to 331.8 million dollars. On this batch the loss was about 143.8 million dollars; on 3 per cent.'s of 1908 a loss of 65 million dollars, and on the 5's of 1904, about 34 million dollars. The aggregate loss on these three was something near 243 million dollars. This, of course, assuming that none of the bonds would be returned before maturity.

The sum of 240 million dollars was a vast sum to plan to pay in order to cause a postponement for thirty years of an unpleasant public dilemma. The fact was that the framers of the law were willing to see the public pay 240 million dollars in order that a final overhauling of the currency system might be delayed for thirty years; yet because of the retirement of bonds necessitated by the surplus and the sub-treasury system, the ugly problem connected with the overhauling promises to forcibly loom up sooner than was anticipated. Only a foreign war and a panic requiring special protection of the gold reserve, or a general policy of national extravagance, can occasion the further bond issue needed to keep these questions in the stage of mere academic discussion.

The whole drift then of the discussion and agitation is in the direction of a different system of banking from the present one. Is it wise to depart from what has already been established and enter into a new field of organization, or is it better to modify the present system by some additions from the new?

In this connection it must be remembered that the right to issue notes on commercial assets must be extended to state banks as well as to national banks. There are something over 4,000 national banks, the number of state banks is still larger, making in the neighborhood of

<sup>1</sup> *Report of Secretary of the Treasury, 1890*, pp. xxxiii-xxiv.

<sup>2</sup> Nov. 2, 1901.

9,000 banks engaged in business in the United States. To permit these banks to issue notes on commercial assets must be attended by much danger and great difficulty, and any movement toward asset banking must in its very beginning present some means of avoiding over issue, and in consequence, depreciation of bank notes. It has been proposed to create a central bank with branches, making it possible to use the capital of the central bank, where large assets and resources have been piled up, as the banking capital of the different branches. Such a bank must be either organized by the government or by private individuals. In the first place you would probably have one central bank; in the second, many large banks engaged in so-called branch banking.

Undoubtedly out of the question is anything like a public central bank controlled by the government. The political element that comes into the issue of greenbacks and the maintenance of the gold reserve would predominate even to a greater extent in the organization of a government central bank. The argument to the effect that such a political element is absent from the banks of Germany, France, and England is out of order in the United States, in that the governments named are very different in organization and in power. In the United States the people by their ballots determine in a rough way the policy of the government, and it is very decidedly a question whether they can be relied upon to let a public central bank alone after it has been established. We must therefore rely upon the organization of private central banks if we are to have such a form of banking, and many objections might be urged against a system of that kind. The arguments for a central bank are briefly that the large deposits and vast amounts of specie, now stored in the great banks of the financial centers, would be distributed through branches at the points where capital is most needed, and that there would result as a consequence a building up of commercial relations which cannot now be brought into existence because of the failure of banks to serve the people.

The second argument is the regularity of the currency supply, and the ability of a bank of that kind to gauge accurately the needs of a community for money. Both of these arguments may be granted without further discussion. Nevertheless the question arises, are we ready for a complete system of asset banking, and of the establishment of large central banks in different parts of the country? Certainly it can be urged that such a system scatters reserves over a great territory,

subjecting them to many varying conditions of climate, community, crop returns, and industrial situations, and that the danger of possible failure is therefore greater than under the present system.

Is it not possible, however, to modify the present system in such a way as to secure all of the advantages that come with a banking organization well established? It is stated further that under proper conditions and to a limited degree, branch banking may be permitted to national banks; and second, in order to increase the circulation and its elasticity, permit national banks to issue notes to the extent of 150 per cent. of the bonds deposited by them, under a tax of 3 or 4 per cent., thus making the additional 50 per cent. a sort of emergency currency that can be used in times of difficulty; third, a guarantee fund to protect the additional 50 per cent. of notes, this fund to be based upon some such scheme as that of the New York banking system of the 30's. Fourth, the present redemption system needs enlargement, not abolition, to make it adequate. National bank notes are not lawful money, and cannot be held as reserve required by law. As a result, during those seasons of the year when the movement of currency is toward New York, the banks sort out the national bank notes and send them to Washington for redemption. Here is the very important point of superiority over the greenbacks. The latter remain stationary, and no process of redemption other than that of exchange of gold from the treasury is carried on, and consequently there is an accumulation at the financial centers, producing abnormal credit conditions and stimulating speculation. Since the act of March 14, 1900, the redemption of national bank notes has increased very materially. The total of national bank circulation March 1, 1899, was \$242,989,082, and on March 1, 1901, \$348,655,256, an increase of about one-third in average outstanding circulation. But at the same time the redemption of bank-note currency has increased about 66 per cent. In this connection one writer says:

Fortunately the ready response of our present system to the increased strain of the past year indicates that it will be found adequate for a still greater activity. A mere increase in the force engaged in counting and sorting notes at Washington would probably enable the agency to handle several times the present volume of business . . . . It is quite probable that if we ultimately secure a bank-note currency based on commercial assets, and thus automatically responsive to business needs, the activity of redemptions may even approximate that of Canada and Scotland, where the entire currency is

redeemed once a month. If so, it is reasonable to expect that a system of redemption through clearing houses or other bank agencies will be developed. For the present, however, we need have no fear that the existing system will not properly guard against any material redundancy, so long as the national banks preform their part by keeping bank notes separate from other forms of currency and sending them in for redemption whenever there is no profitable employment for them.<sup>1</sup>

It would seem then from what has been said, that we have the basis of a better system than exists at the present time. What is needed, therefore, is careful legislation introducing a commercial asset system of bank note issue, an enlargement of the redemption agency, and an establishment of a guaranty fund for the increase of bank notes. Such a system would certainly offset the tendency toward the decrease in national bank notes and maintain their proportion in the present system of currency.

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<sup>1</sup>L. C. ROOT, in *Sound Currency*, vol. viii. No. 1, p. 64.

## BOOK REVIEWS.

*L'essor industriel et commercial du peuple allemand.* By GEORGES BLONDEL. Troisième édition refondue, mise au courant et augmentée. Paris: L. Larose (Bibliothèque du musée social), 1900. 12mo, pp. xx + 502.

IN his excellent *Studies on the Rural Population of Germany and the Agricultural Crisis*,<sup>1</sup> the French economist, Georges Blondel, endeavored to familiarize his countrymen with the agricultural conditions of the German empire. He has since undertaken to study its manufactures and commerce. The results of his investigations were first read by him before the "Musée social" in Paris, in December, 1897. He published this address in 1898 in enlarged form in a little pamphlet of about 200 pages, under the title, *The Industrial and Commercial Rise of the German People*. At the request of the "Musée social," he again went back to Germany, and as a result of this new trip the second edition, published in 1899, was twice the size of the first. The third edition of 1900 is a volume of 500 pages.

Mr. Blondel begins with a description of the attention paid in late years in England, Russia, and France to the increasing competition of the German manufactures and commerce. He shows that, while in the year following the Franco-German war the foreign commerce of France considerably surpassed the German, Germany began to take the lead in 1877. He points to the fact that, about 1840, France had as many inhabitants as Germany; to the difference in the subsequent increase of the population of both countries; and to the great increase in size and number of large cities in Germany, and of the number of workers engaged in German industries and commerce. After this general view, he treats (pp. 36-114) some of the leading German industries. He thus takes up mining, foundries and machine-shops, the electrical industry, the textiles, the chemical and agricultural

<sup>1</sup> *Études sur les populations rurales de l'Allemagne et la crise agraire*, par GEORGES BLONDEL (1897); translated into German as: G. BLONDEL, *Die landwirtschaftlichen Zustände im Deutschen Reiche*. Nach dem Französischen bearbeitet von Ahn und Möllendorff. (Cologne, 1899.)



industries; he touches lightly, also, upon the clothing industry, china and glass-making, the manufacturing of furniture, toys, musical instruments, and the paper and leather industry.

In a second chapter he investigates the commercial rise of the German empire. He discusses briefly (pp. 116-135) the development of internal trade by railway, rivers, and canals, and treats to a considerable extent (pp. 135-271) the foreign commerce. After having briefly touched upon the projects of international canals, he subsequently takes up the development of the commerce of the ports, of the construction of mercantile ships, the navigation lines, the navy, and the colonial undertakings. But his treatment of the German exports and imports is somewhat superficial, his statements with regard to the commerce with Russia are contradictory, and his figures for the trade with Mexico are wrong, as are also some regarding the United States. The same may be said about the diagram which he gives later (p. 452) for the total imports and exports of the United States. However, aside from these and a few other errors, this chapter gives a good general survey of the foreign commerce of Germany, especially regarding the progress recently made in Asia and South America.

After describing the industrial and commercial rise of Germany, Mr. Blondel treats in a third and very interesting chapter (pp. 272-374), the causes of this rise. The traits of character which, according to him, have especially effected the present economic strength of Germany, and the lack of which has kept the French back, are the expansive character of the Germans, which has manifested itself in their colonizing central Europe and in their emigrations, and their spirit of association. Among other qualities which the German has and which the Frenchman lacks, he especially mentions his tenacity, his love for the industry he pursues, his interest in economic questions. He also points to his investigative character, his patience, his hard working, his moderate needs, and his retaining of his nationality. The second of the reasons explaining the economic rise of Germany he declares to be the eminently practical education given to the German youth. He describes the technical, trade, and commercial schools, the permanent industrial expositions, the depots of export samples and bureaus for commercial information, the museums of industrial art, the fairs. He especially dwells upon the application of science in German industries, the knowledge of language among

Germans, their extended and methodical traveling. Character and education, however, he says, are not the only causes which explain the industrial and commercial rise of the German people; the action of the government is a third factor. He describes the solicitude it has exhibited for commerce by the reorganization of the chambers of commerce, the improvement of the consular service, and the encouragement given to technical, trade, and commercial schools, and gives a very lucid account of the commercial and tariff politics of the German empire compared with those of France since the Franco-German war.

In a fourth chapter (pp. 375-402) he treats the causes of the inferiority of France. He sees the main reason for the small progress of its foreign commerce in the stagnation of the population, another in the narrow and inadequate methods of the French merchants in conducting business with foreign peoples. He also thinks that the protective system adhered to by France is partly responsible for the stagnation of its foreign commerce. He especially dwells upon the necessity of a change in the French system of education; it should, by laying more stress upon the industrial and commercial instruction, better prepare the young man for practical life; it should turn towards manufactures and commerce a part of the intellectual strength of France, which at present flows almost entirely to the professions and to official positions, and should tend toward increasing the spirit of initiative and responsibility in the youth. In his conclusion (pp. 403-412), he points to the detriment ensuing to the French people from its political party quarrels, but finishes after all by exhorting his countrymen not to be discouraged.

Mr. Blondel devotes a large appendix (pp. 413-484) to various special topics. He reproduces some statistics of the world's production of coal, describes the trip of William II. to Palestine, and the progress of the Germans in the Levant, the occupation of Kiautschou and the intervention of Germany in the extreme Orient, the commercial relations of Germany and the United States, and the rôle played by banks in the economic life of Germany. He gives, finally, in a few additional notes (pp. 485-498), some statistics for the year 1899.

There are two drawbacks to Mr. Blondel's book which I wish to mention. The one is a direct consequence of its development from a short paper; there are parts which are a mere collection of notes and quotations not always showing a proper regard for systematic

arrangement. The other is that, as he himself acknowledges, he depends to an almost too great degree on secondary sources. He thus quotes the census figures of the industrial population in 1882 and 1895 from the report of an ambassador. The consequence is that this table (page 27 f.) is full of mistakes, partly perhaps only misprints. These drawbacks have to be criticised the less severely as the author characterizes his book as a "simple sketch." He announces the intention of publishing soon a detailed description of the economic and social transformation of the German empire in the last quarter of the nineteenth century. In view of his clear and impartial judgment, and his stupendous knowledge of the widely scattered literature, which he already displays in the book just reviewed, every student of the subject may look forward with interest to the execution of this plan.

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*Handel und Wandel.* Jahresbericht über den Wirtschafts- und Arbeitsmarkt. Für Volkswirte und Geschäftsmänner, Arbeitgeber- und Arbeiterorganisationen. Jahrgang, 1900. Herausgegeben von RICHARD CALWER. Berlin-Bern: Akademischer Verlag für sociale Wissenschaften, 1901, 8vo, pp. 240.

THIS is the first number of an annual which the editor intends shall contain a survey of all the fields of economic activity in Germany, sufficiently detailed for purposes of orientation. In it the legislator, the economist, the practical business man, and the laborer are to find the information necessary to judge fairly the economic questions by which they are confronted. Such is the intention expressed in the preface.

Little encouragement is given, however, to the exercise of independent judgment on the part of the reader. Indeed the book is really little more than a monograph by Herr Calmer on economic conditions in Germany. It contains a large mass of useful information collected from sources usually trustworthy, and from this information the writer draws his own conclusions and seldom hesitates to give them emphatic expression. In some cases the reader will find it easy to agree with him, in others his opinions will seem biased or founded on insufficient evidence.

The writer points out that the continued prosperity that had been enjoyed for several years in nearly all branches of industry and commerce ended in 1900, and a strong reaction set in. He believes the depression was due wholly to the inordinate enlargement of German enterprises and the resulting overproduction (pp. 20-28). The attempt to prove this is the main purpose of the review which follows, of the leading industries and of the labor market. The evidence adduced, however, is not convincing. For it seems to us that the writer underestimates the influence of foreign competition—especially the growing competition of the United States. Nor does he sufficiently allow for the disastrous effects of the coal-miners' strikes, of the political troubles in South Africa and China, and of a series of other causes that might be mentioned.

But even though one may not always agree with the "editor," this first number of his annual will still be found usually interesting, frequently instructive, and always suggestive. A specially useful feature of the book is formed by the statistical tables given in the appendices.

T. W. PAGE.

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*Studien zur österreichischen Agrargeschichte.* Von KARL GRÜNBERG.

Leipzig: Duncker und Humblot, 1901. 8vo, pp. vi + 281.

THE three essays that make up this little book form a valuable contribution to the economic history of a part of Europe whose development merits more attention than it has received. In his account of certain phases of this development the author takes the attempted reforms of Joseph II. as a point of departure. He describes the conditions that made reform seem necessary to that "lonely antagonist of destiny," points out the obstacles against which the movement for reform was shattered, and accounts for the continuance of the policy, *quieta non movere*, until 1848. In the intricacies of Austrian legislation and the long discussions of proposals that came to nothing, the reader is in some danger of losing sight of the really controlling forces. Indeed, the book is rather a study of certain lines of agrarian legislation than studies of general agrarian history. For all that, it contains much information about the condition and customs, as well as the legal position, of the rural classes.

The first essay discusses the abolition of slavery and serfdom in Bukowina. This little province when ceded to Austria in 1775 had a

population of about 75,000. Of this number something less than 2500 were gypsies who were held in slavery as absolute as that then prevailing in our southern states. The majority of the other inhabitants were serfs whose predial services were light, because, owing to the backward condition of agriculture, there was little demand for their labor, but who were bound to pay to their landlords a tenth of all their produce. The Austrian government made various attempts to substitute freedom for bondage. The slavery of the gypsies was indeed abolished; but the serfs were little benefited, partly because the government found it necessary to conciliate the landlords, partly because it failed to understand the customs that prevailed in the province. It was not until 1835 that the land of the peasants which was held in common by the village inhabitants was divided and assigned to individual ownership; and not until 1848 that the services due to the landlords were abolished and compensation promised to those entitled to demand them, a compensation which the state was eventually bound to assist in paying.

The second essay relates to the restrictions that existed in Bohemia on the purchase of land. These were abolished by Joseph II. in spite of the bitter opposition of the nobles, who saw the economic basis of their existence as a class gravely threatened if the bourgeois and peasants were permitted to hold *herrschaftlicher Grund und Boden*. The writer shows that—contrary to the impression heretofore prevailing—under the system of freedom thus established no great amount of land passed out of the ownership of nobles into that of members of the other classes. Social and political conditions rendered it out of the question for the peasants to discharge the judicial and administrative duties that constitutionally devolved on the owners of such land. After Joseph's death his policy was abandoned, and there was a return to the ancient customs, which prevailed with no important alteration until the Revolution of 1848.

In the third essay the writer takes up the law of inheritance and the restrictions on the subdivision of peasant holdings that prevailed in Austria before 1868. About a generation ago Joseph Unger pointed out that the old Austrian legislation in regard to the inheritance of peasant holdings was in no respect different from the common law. This opinion was accepted, however, neither by contemporaries nor by later writers and statesmen. An extensive study of original sources of information enables our author to show that Unger's opinion was quite correct, except with regard to Tirol and

Vorarlberg. In doing this he has thrown a great deal of light on the motives and agrarian policy of the Austrian government since the time of Maria Theresa and likewise upon the social and economic condition of the lower classes of the people.

T. W. P.

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*The Confederate States of America, 1861-1865: A Financial and Industrial History of the South during the Civil War.* By JOHN CHRISTOPHER SCHWAB, A.M., Ph.D. New York: Charles Scribner's Sons, 1901. Royal 8vo, pp. xi+332.

MANY volumes have appeared treating of the reasons for the conflict here dealt with ; of the military and political methods employed by the leaders on both sides ; of the political and constitutional results ; of the financial policy of the North. Professor Schwab's treatise presents for the first time a view of the peculiar economic conditions existing in the South at the beginning of the war and resulting from its continuance, as well as a study of the financial policy pursued by the central government and the several states of the confederacy.

Professor Schwab treats this subject as a study in "anomalous economic conditions," a picture presenting "the negation of normal economic forces," by the condition of war itself, which wrecked the pre-existing industrial organization ; the blockade which forced upon the South an economic isolation, "depriving her of all the advantages that modern international trade and credit relations might have offered, and compelling her to revert to earlier industrial forms ;" and by the mistaken monetary and financial policy pursued by central and state governments, which led to the destruction of such credit as they possessed at the opening of the war, to inflation of prices, and to financial disaster.

The course of this mistaken financial and monetary policy is traced in detail, and analogies are instanced at every step between the policy here presented and similar action taken by the United States government during the wars of the Revolution and of 1812 ; by the French during their revolution ; by the Italian government at different times, and even by the Chinese government centuries ago. Comparison is also made, though less often than might be desired, with the action of the Federal Congress during the same period, and the policy of Secretary Chase.

Interest centers chiefly about the relation existing between the loan and tax policy in the effort to secure the wherewithal to carry on the war; the monetary policy; and the effect of the war on the development of industries in a region where agriculture had so largely prevailed.

The financial legislation and that regarding taxation is treated of in five chapters, the first four chapters being devoted to the former subject, the single chapter on central and local taxation being strangely enough put at the end of the treatise.

The financial policy, based almost wholly on resort to credit, was inaugurated February 28, 1861, when a loan of 15 million dollars was authorized by the provisional congress. This sum was to be issued in bonds bearing 8 per cent. payable in ten years and redeemable in five at the pleasure of the government by giving three month's public notice. A special duty—a small export charge on cotton—was pledged to the payment of this issue. With the results of this loan, which was quite successful, the funds seized from the United States mints and customs houses, *i. e.*, about one million dollars, and the contributions freely made to the cause, the conflict was begun. The issue of treasury notes began March 9, 1861, and by August of that year the government was committed to a paper money policy. Secretary Memminger, like Secretary Chase, failed to appreciate the duration and severity of the struggle for which it was his duty to secure the means, or of the necessity of immediate and vigorous resort to taxation. Professor Schwab implies that public sentiment on the subject of taxation in the South was behind that in the North, so that, of the two, the southern secretary was the less to blame.

One interesting difference is to be noted. The confederate government did not go to the extent of making its notes a legal tender. Such action was proposed and debated again and again; but the arguments urged in vain in the federal Congress during the winter of 1861-2 against such action prevailed in the South. The arguments which prevailed in the North were urged in the South, with one exception—an appeal to the "general welfare" had been prevented by an alteration in the constitution adopted by the confederacy, by which that dubious clause was omitted. The conflict itself was the outgrowth of the "strict construction" theory, and the influence of that theory prevailed. Some of the states, as Alabama, made contracts thereafter entered into payable in confederate notes; but in other states such

legislation, when proposed, was either rejected or vetoed as being in violation of the provision that states should make only gold and silver a legal tender. Harsh measures were resorted to by individuals and by authorities sometimes to influence individual action by the force of public opinion; but it may always be put down to the credit of the confederate government that it did not go to the extreme marked by the legal tender act of February 25, 1862, of the federal Congress.

The policy inaugurated during the first year was continued during the entire war; its features were: a minimum use of taxation; loans proposed, but failing because inadequately sustained by taxes; and finally a despairing return to treasury notes. Only at the end was there a recognition by Secretary Trenholm of the blunder; and a fruitless attempt made to resort to taxation as a basis for the credit now hopelessly destroyed.

Professor Schwab's treatment is uniformly sympathetic; yet he presents this course from the view-point of the present rather than of that day. The blunders seem in his presentation so obviously blunders that one wonders at the blindness of the leaders, and his closing statement comes as a surprise—"The history of Europe, and especially of the United States, indicates that no statesman or body of statesmen could have devised means of carrying on the war without recourse to such arbitrary and disturbing fiscal devices."

It would be interesting to review the narrative with regard to currency expedients, the fiat money notions prevailing, the issues of notes by local units of government and private corporations, the resort to barter, the rise of prices, the attempts of government to control prices, etc. These have all a familiar sound as expedients resorted to in the other wars enumerated, but the old expedients gain new interest with each example of faith in their efficacy.

As to the development of industry, Professor Schwab finds that the effect of the war on mining and manufacturing industries was slight. Those industries connected with the supply of arms and ammunition were encouraged, but seem not to have gained a permanent foothold. Cotton and paper mills were established, and various forms of manufacturing were attempted, but did not pass beyond the point of experimentation, because of the lack of capital and skilled labor. The railroads suffered enormous losses. Agriculture was injured by the ravages of war, by the effects of the blockade which shut off the foreign and northern market for tobacco and cotton, and by the mistaken policy of



the authorities as to impressment and fixed prices of supplies for the army, which discouraged such cultivation of the land as might have gone on even under the conditions of war.

In spite of the scarcity of material and difficulty of access to the sources, or perhaps because of these obstacles, Professor Schwab's treatise is a most valuable narrative of the struggle from the industrial, and more particularly from the financial point of view. The reader sometimes wishes that the space occupied by the innumerable comparisons might have been given to human touches of explanation which would have explained the lack of financial leadership, contrasting with the brilliant military records. Sometimes, too, there is a suggestion of the mechanical in the succession of citations in cases where similarities were so great that to refer to differences — as in the case of the policy adopted by the several states with reference to the same question, would have given greater clearness to the narrative. But these are small and carping criticisms of a faithful and sympathetic presentation which should be heartily welcomed by the student of this the crucial period in our country's history.

S. P. BRECKINRIDGE.

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*Reconstruction in Mississippi.* By JAMES WILFORD GARNER. New York: The Macmillan Co., 1901, 8vo, pp. xiii + 422.

THIS presentation of "a period too little studied as yet and of capital importance in our constitutional history" is a timely one, and an illustration of the statement ventured recently that "even the period of the reconstruction can now be judged fairly enough." In view of late constitutional and political developments in many of the southern states by which, it is believed, the work of reconstruction is being undone and its effects nullified, such a study has peculiar value. In interpreting such phenomena, answers must be sought to the questions: What was attempted by the reconstruction policy? Wherein did that policy succeed temporarily? Which of its results have stood the test of a quarter of a century, to be then, perhaps, overthrown?

With reference to one state, Mississippi, taken as illustrative, the writer has supplied answers to these queries in a discussion which is dispassionate and scholarly and at the same time most sympathetic.

Politically, interest centers in the causes leading to the substitution

of the "congressional" for the "presidential" policy of reconstruction; the relation of the military to the civil authorities; the admission of the freedmen to the electorate; the readmission of the state to the Union under humiliating conditions; the subjection of the state to government by "carpet-baggers," "scalawags," and freedmen; and the "revolution of 1875," leading to the expulsion of the carpet-bagger, the rejection of the scalawag, and the relegation of the freedmen to a subordinate position in the political life of the state.

Economically, the situation was scarcely less dramatic. Its important elements were the destruction of all material forms of wealth by the ravages of war; the destruction of labor force through the effects of military service on both races and of emancipation on the colored man; the enormous burden of taxation laid by the Federal Government and the extravagant administration of state authorities; and the readjustment of the labor system growing out of the substitution of free for slave labor. Each of these items receives intelligent treatment.

For the student of general social development, the chapters devoted to "Educational Reconstruction" (X), the "Kuklux Disturbances" (IX), and the "Freedmen's Bureau" (IV) will have a special interest.

The excellent construction of the volume from a mechanical point of view may well be noticed. The main discussion shows an admirable self-restraint; while the multitude of footnotes and references not only indicate the thoroughness with which the sources of information have been utilized, but add information of a social, personal, and local character, such as to illumine the subject and intensify the interest of the matter presented.

S. P. B.

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*Beiträge zur Geschichte des Judenrechts im Mittelalter (mit besonderer Bedachtnahme auf die Länder der österreichisch-ungarischen Monarchie).* Band I. *Die Rechtsverhältnisse der Juden in den deutsch-österreichischen Ländern.* By DR. J. B. SCHERER. Leipzig: Duncker & Humblot, 1901. 8vo, pp. xi+671.

THE present volume begins with a lengthy introduction wherein are discussed the principles which during the middle ages governed general European legislation about the Jews. The author then goes on to his chief subject, the legal conditions of the Jews in Upper and Lower Austria, and to this he finally attaches a survey of their situation as well in Styria, Carenthia, and neighboring provinces under the

Austrian crown. The book is written with no attempt to narrate pleasantly or to show any "style;" it is rather a summary of laws passed upon the relations between Jews and Christians, with short explanations or remarks as the subject may demand. The large material, however, faithfully recorded makes it a very useful volume to the student of mediæval conditions, and the laws in their graphic sternness are really narrative enough. They stand out as sinister mileposts on the long and stony road of the unhappy foreigner and stubborn denier of the divinity of Christ. The book, of course, mainly treats the political situation of the Jew, but interwoven with this are enough of instances which throw light upon his place as an economic factor. This was a phase of no mean importance, since it was his fate to introduce among a stupid and backward population methods that were far beyond their appreciation and must necessarily have clashed with their primitive notions and undeveloped practices, based as these were entirely upon husbandry and natural economy, with no conception whatever of large industries or rapid exchange. The political situation of the Jew is copiously illustrated by reference to the royal letters and privileges and to the decrees of the church councils, which together picture the basis on which the life of the Jew in European society was founded, a basis barren enough of security, and allowing mostly only a life passed in suspense; the economic situation, of course, is largely an outcome of the political.

The Jew as a money agent, his precarious existence as an object of constant greed and hatred because of his exclusiveness, the mystery which surrounded his actions, since no one could follow or understand his dealings with his brethren in the true faith, dealings so full of absolute trust and solidarity of interests that large sums were conjured into light upon a mere signature, and therefore, as the outsider argued, dangerous because so deep was the conspiracy and so great and unclean was the wealth—all this is only too well known and need not be repeated. It is of far greater consequence to retrace to its source, as the author does in his introduction, the aversion against the Jew and thence the progress of the ill will and the repressive measures until the Jew is finally driven out as an unbearable evil to the society in which he has but been endured. The author here distinguishes between the two leading principles in the legislation against the Jew:

1. The principle inherited from Christian Rome, where the Jew is looked upon as a non-believer, hostile to the ruling religion, and

against whose influence the state must be protected. This principle penetrates to the Germanic empires founded upon Rome, and finds its strongest manifestation in the laws of the Catholic Church, causing not a little of that suspicious hatred and constant exposure to persecution on account of the faith from which the Jew suffers during the whole mediæval period and down to our days. The antagonism of the ruling church is probably nowhere shown so distinctly as in the novella by Justinian, where the Jew is deprived of civic honor and yet made to contribute to the maintenance of the state (p. 19). The Byzantine Empire is conspicuous for its intolerance. Constantine V., Porphyrogenitos, for example, prescribed as a fitting humiliation for the Jew the following oath, which became the model of similar ceremonies in mediæval court proceedings:

The Jew shall girdle himself with thorns, hold the roll of the law in his hand, and say: By the Lord, praised be he, the God of our fathers, who created heaven and earth, and brought us to the Land through the Red Sea, I speak true. But should I be found to have lied, may the Lord give me the leprosy of Giezi and Naaman and the curse of the priest Eli, and may the earth open her mouth and swallow me alive as she did Dathan and Abiron.

2. The other equally important principle is based on the view that the Jew, wherever he stays, is a foreigner, and as such he is to be treated as an outlaw, subject to any outrage; a view thoroughly in keeping with the narrow tribal conception of freedom and rights which characterizes primitive society and was inherent in Germanic tribal law. According to this the man of foreign blood whose law and homestead was not known fell a victim to the superior rights of the one who first met him and succeeded in capturing him. The only way for the stranger to escape was to appeal to one still stronger, to the lord of the country, and give himself entirely into his power. The most satisfactory protector was of course the king, into whose power any homeless or lordless man or beast who trespassed upon forest, waterways or highways must ultimately fall, and who would be less likely than any other to seize at once upon the belongings of the stranger or take his life. All the indignities to which the Jews have been subjected are in a large measure due to this view of the stranger as the lawful prey which is so characteristic of a period when the protective power of the state is only in name territorial, while in fact all tribal or provincial law is wholly personal. Thus put between two extremes—the abhorrence of the church for his religion and the

hostility of the tribal law to his nationality—the Jew could only make himself endurable by his capacity for business, which opened up the vista of profit, of economic advantage to the king in return for any help he might accord him. It was a prospect which even persuaded the king to safeguard the Jew against attacks from the church or from popular prejudice, and in return he appropriated the new acquisition for his own particular purposes. At a very early period the Jews were made the slaves of the fisc, their persons and goods to be disposed of at the king's pleasure. As their usefulness depended largely upon their freedom to trade, this freedom was granted them, but they were at the same time made to pay heavily for the privilege. As early as Louis the Pious they were expected to perform certain services to the palace and to contribute yearly in goods and money to the royal treasury (p. 67). In legal procedure they were punished like unfree. But the Jews were intrepid and necessary as peddlers, as traders, intermediaries between the Orient and the Occident. They established themselves at the marts and fairs connected with the royal palaces or the river cities. The slave trade was in their hands. Until the seventh century the Syrians had governed the trade with the West, but for natural reasons the Jews stepped in their place. With wares on their back or treasure concealed on their person they followed, as in the far past the Roman merchant had done, in the wake of the army or the raiding band and reached the inland districts, offering desirable trifles or the far greater treasure of the incomparable arms or the splendid stuffs which the superior skill of the East had manufactured. The Jews succeeded only with indescribable toil in making personal profit out of their bartering, and if any mishap occurred and they sought royal help, the king might seize upon all they had won as his lawful return. They are henceforth most intimately associated with the financial system as the king's bondservants, whose movements he could limit and confine to the place of the original settlement, penned up in some convenient locality, to be sold or transferred as other property, and prevented under penalty and fine from making the least change of domicile. This was particularly the case after their number increased and, the local trade by degrees falling into the hands of natives, they became more and more restricted to the handling of money and lending it on interest. This specialty is the Jews' dire calamity. In an age when ready money was a rarity and the price of it accordingly extraordinary, the obligation to pay beyond

the original amount ended often in the insolvency of the debtor and the Jew taking possession of his goods. The necessity of charging interest, however, was looked upon as a wicked practice which the church forbade. And the claim which the Jew had might not be realized if the king or the prince, upon the presentation of the defaulting party, took upon himself to annul the whole matter. The Jew might be glad if, as the least punishment, he had not to pay heavily in order not to lose all he had.

In the question how the king lived, how he scraped together some income in spite of rapacious vassals and how in an emergency he succeeded in having large sums at his command, the Jew figures as the secret: Open sesame. He was liable to be delivered of large sums at short intervals, often under additional pressure of moral or physical torture; for by natural inclination he often denied that he had anything at all to contribute. Whenever the king's financial condition necessitated it, he was likely to borrow from some trusted Jewish banker with fair promises of repaying, and what he did not get at once he could get after a while by the mere threat of driving the Jew from the country. The best known cases are the forced payments under Richard the Lionheart, John Lackland and the always needy Henry III. (page 90). The sums thus pressed from the despairing Jews surpass even the imagination of their wealth at a time when money was doubly scarce. And yet not even the Christian states or the Christian church in their attempt to put the Jew morally and economically on the rack invented the most oppressive and dangerous mark of their degraded position. It was Islâm, the supposed tolerant Islâm, which decreed that the Jew should be characterized by his clothing and other signs as an unbeliever and an alien (p. 31), and it is from Islâm, Scherer thinks, that the famous council of 1215 under the auspices of Innocent III. borrowed its idea of ordering the same thing for all Christian countries (p. 42) — a demand which singled the Jews out for persecution and made it impossible for them to mingle or even to come to any cordial terms with the population. They were henceforth reduced to the narrow circle which their belief, their character, and their occupation created, without any promise of ever breaking through it. The fury of ignorance which so often characterized the Catholic Church caused the popes repeatedly to order the confiscation of their sacred books, particularly the Talmud, at times when the congregation was worshiping in the synagogue. That the Jew grew desperate and became more unscrupulous

than ever in the pursuit of riches cannot be surprising, taxes and dues growing apace with the politically hopeless situation. Finally, however, the constant admonitions of the popes to the Christian kings to deliver their peoples of this pest bore its belated fruit, and in spite of the piteous pleadings of the Jews, their property and claims being confiscated, they were expelled from England in 1290, from France in 1393, and during the fifteenth century from the remaining European countries except Germany and Italy. In Germany the always bankrupt emperor could not dispense with this faithful financial milchcow, except where it had been granted away with other privileges to princes, prelates and free cities. Aside from occasional outbreaks of fanaticism, the Jews were there left generally undisturbed, their life, however, being no sinecure.

In the part of the book dealing with Austria, which is by all means the longer, the author goes into details that concern chiefly the political status of the Jew. The pro-Habsburg period was rather favorable to the Jews and they contributed materially towards making Vienna a commercial center for southeast Germany. The magnificent waterway of the Danube and the midway position of the city made it an ideal staple market for the products from the East and the West (p. 123). But later the Jews had to yield in their competition with native traders and became bankers. Their real hardships began after the establishment of the Habsburg dynasty. The terrors of the Black-Death having made the ignorant people believe the Jews were the secret instigators of the plague, they suffered exceedingly from popular fury (p. 369). In a decree of 1544 they were accused of theft, of usury, of possible underhand dealings with the dreaded Turks and were expelled from the country (p. 450); but inasmuch as they had already repeatedly been expelled and had been allowed to stay some years longer, we do not know from what the author says that this decree was really final in its effects.

If, as history seems to show, a Nemesis slowly but surely visits the evils perpetrated upon the perpetrators, the day of reckoning after so great and bitter wrongs must be very heavy indeed. Whatever their faults were, the Jews seem to be more sinned against than sinning. To the student of civilization, they appear to have suffered the fate of those more capable in mind, but deficient in brute force. That they survived is the most extraordinary instance of the power of endurance given a race or a small nation by its superior intellect and moral

earnestness. Baffled in their struggle to secure better conditions by mere industry, they developed a dogged determination born of despair to hold out, a determination such as the lone martyrdom of a superior race, peculiar in its ideals, exclusive in its devotion, sometimes reaches. The author gives in his preface an account of his object in publishing his book, namely, that material hitherto unexplored will henceforth facilitate the study of the Jews' legal position in the Austrian-Hungarian countries and will go to show that in spite of local differences legislation is generally uniform, that the laws of one place have influenced those of another, the outcome being in this case a rather low level of human rights. He closes with the opportune wish that this work, being written in the service of humanity and truth, the progressive culture of the twentieth century may at last lead man to be man and brother despite everything.

A. M. WERGELAND.

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*The Rationale of Fire Rates.* By A. F. DEAN. Chicago: J. M. Murphy, 1900. 12mo, pp. xiii + 225.

*Fire-Rating as a Science.* By the same. Chicago: J. M. Murphy, 1900. 12mo, pp. xii + 216 + ix.

FIRE insurance has been characterized as a magnificent system of guess-work. Only through the combined efforts of insurance men like Mr. Dean can this branch of insurance be rescued from the chaotic state in which its past history is enveloped and raised to the level of scientific methods, if not to the rank of a science. It is hardly profitable in this place to enter upon a discussion of the question, Can fire insurance be made a science? Life insurance is a science; but every man must die; no building must burn.

The two volumes under review constitute important and valuable additions to the literature of fire insurance. Experience and reflection are mingled thoroughly in the vigorous discussion of the wide range of subjects with which the author deals. Both volumes are interesting and abound in illustrations and parallelisms. To be sure there are times when Mr. Dean carries his parallelisms, analogies, and antitheses to the point of doubtful utility, as when, for instance, he compares "bug" with "thug," in the first volume; and in Part I of the second volume he introduces extraneous material, the necessity for which is not always apparent. But these are matters of secondary importance



and should not detract from the intrinsic merits of Mr. Dean's books. Besides, Mr. Dean appears to be actuated by the commendable motive of applying scientific methods to fire insurance; and in his anxiety to do so he has, perhaps, gone too far in the attempt to fit facts of fire insurance into the molds of Spencerian philosophy. The last remark applies chiefly to Part I of the second volume.

*The Rationale of Fire Rates* is divided into a brief introduction; two parts, designated "Review" and "Deductions," respectively; and an appendix of sample schedules and a sample classification list. The review touches briefly upon important aspects of fire insurance, such as associations, anti-compact and other laws, commissions, agents and brokerage, valued policy laws, co-insurance, classifications, standard rates, etc. Mr. Dean finds "the bone of contention" in tariff associations, whose interests he regards as harmonious with those of the community. They encourage, he says, co-operation, a study of processes and substances, fire-preventing devices and safer construction, better care of property, and a more equitable apportionment of the fire tax. The rating association is a public servant which performs important protective and educational functions. Rating associations lead directly to systematic tariffs, uniform classifications, regulated commissions, etc. Open competition is chance. Fire insurance is not entirely like other business enterprises, and consequently it requires individual treatment at the hands of administrative authorities. Naturally the author protests against existing diversities and antagonisms in the statutes relating to insurance in the various states. In the "international comparison of laws and loss ratios" he finds that the lowest cost prevails where a rigid personal responsibility is attached to the insured; and the next lowest, where the industry has not been hampered by exacting laws. "The business has been profitable where rates are low, and unprofitable where rates are high." The attitude of legislatures toward fire insurance companies is often one of hostility, and statutory interferences have sometimes resulted in higher rates and an increase in moral hazard. This is strikingly illustrated by the valued policy laws, the first of which came in with other Granger legislation in 1874. Were legislators more familiar with Mr. Dean's chapter on the valued-policy law it is not improbable that much less of this species of "legislative lunacy" would manifest itself in the future. Only a few days ago a Wisconsin judge, in which state the first valued-policy law was enacted, sentenced a young man, hith-

erto reputed to be of good character, for burning his printing office in order to secure excessive insurance moneys. This crime would probably never been thought of had not a valued-policy law been in force in this state. Analogous to valued-policy laws are laws prohibiting co-insurance, which prevail in one-fourth of our states. Generally speaking, co-insurance is obligatory in Europe and prohibited in the United States! Mr. Dean also points out the anomaly that the principle of co-insurance has always been applied to marine insurance. The question of agents' commissions is fully discussed. "Two tariffs are essential in fire insurance—the tariff of rates to regulate competition among agents and the tariff of commissions to regulate competition among companies." Associated action of companies is necessary for a correct ordering of rates and commissions. In this the companies are confronted by anti-compact and anti-trust legislation which hampers the development of the necessary associations, and assists in perpetuating the conflict between tariff and non-tariff companies. In fire insurance, within limits, competition means discrimination. The very essence of competition is discrimination. Great mercantile establishments employ expert buyers of fire indemnity who go shopping for rates. "Inducements are offered by which one establishment secures its insurance for thousands of dollars less, at the expense of scores of others out of whose treasures the deficit is made good. Three methods of compensating agents are discussed: straight, graded, and contingent commissions. The last method gives the agent a direct financial interest in the profits of the company in his district, and to that extent also toward the building up of the business; but, on the other hand, it may lead to discrimination among the companies represented by him, on part of the agent. The weakness in present commission systems is that "they all estrange agents from the companies and the public, by isolating their interests." Out of every dollar received by the companies in premiums about ninety-eight cents is distributed for expense and fire losses. The former may be analyzed approximately into the following parts: taxes, \$0.03; management, \$0.15; commissions, \$0.20. "Through analytical treatment and legislation based upon reason instead of rancor" a reduction of about one-third in fire cost is possible, as follows: tax reductions, \$0.02½; combined inspection, \$0.02½; commissions, \$0.05; losses, \$0.25. Mr. Dean would not reduce inspections absolutely, but combine companies for the purpose of examining risks; and the decrease in losses he

would bring about through a reduction in moral hazard and an equalization of insurance values. He would establish a classification and a standard rate or tariff corresponding to the average of the loss wave, subject to modification by each company on the basis of its experience. In this way each company could still establish its own rates independently. "The final desideratum is uniformity in the requirements of the states, and in the usages of the industry—uniform laws, uniform taxes, uniform financial statements, uniform policy blanks, uniform proportion of insurance to value, uniform classification, uniform rate tariffs that do not discriminate among property owners, and uniform commission tariffs that do not discriminate among agents or property classes."

*Fire Rating as a Science* follows a similar plan of construction, consisting of an introduction, two parts—"Principles" and "Detail"—and an appendix. Fire underwriters "have allowed the spirit of adventure to elbow the spirit of research into the background." The problem of problems is "to determine the real relation between fire rating and science." Fire insurance is dualistic in its nature: commercial and scientific. These two elements frequently come into conflict because of the compromising attitude of the former. Mr. Dean devotes a good deal of space to a discussion of what science is, and in the chapter following treats of the relativity of knowledge. He emphasizes the establishment of *relations* as the first step in making fire insurance a science. This important fundamental truth the author traces into its far-reaching consequences. A study of relations must inevitably redeem fire insurance from guesswork methods. The law of rhythm is one of a series of laws characterized by philosophers as universal, and subordinate to this law the author places the wave of fire destruction, varying from nothing to the total value of the property. A study of fire wave motion follows, with the conclusion that "waves of fire destruction tend toward reduced width of vibration in proportion as property is segregated into smaller unexposed values." Different classes of property have different waves of fire destruction, but the proportion of the total fire cost borne by different classes has not always been in accordance with their respective wave lines. In this lies an injustice which the establishment of true relations among rates can remedy. A table of individual loss ratios by classes is introduced, showing "the utter worthlessness of the separate experience of a single

company as a criterion to the average loss ratio of each class, while, on the contrary, a comparison of these individual experiences with the column marked 'combined' shows that there is an established mean which, if known, would constitute a reliable standard for determining adequate class rates." Combined classifications would establish *averages* derived from the experience of all; and this is possible, except in case of unusual risks. Hence the companies should adopt uniform classifications, at least for rating purposes, and publish all future local tariffs with the class number opposite each risk. No thoughtful person will question Mr. Dean's statement that we have far less to fear from an honest publicity than from the suspicions generated in the public mind by an ignorance of the facts. Mr. Dean would make all basis tariffs uniform throughout the United States *as to form and method*. He would use this national tariff as a central standard of comparison in bringing about uniformity of analysis and arrangement, and preserving consistent relations among state tariffs to each other. From the standpoint of system he thinks it desirable, perhaps, that the country is divided into states, "representing geographical areas with similar characteristics." The reader gathers somewhat different impressions from p. 137 of Mr. Dean's earlier book: "Fire insurance . . . is, by its very nature, an interstate industry. Its rates cannot be based upon the experience of single states, and no intelligent treatment of the subject is possible except through either national or interstate action." From the point of view of fire insurance, it is difficult to see that our states necessarily represent "similar characteristics," especially in regard to moral hazard. The reviewer is not at all certain that it cannot be shown that loss wave lines for specific classes of risks, running through the whole country, irrespective of area, are more nearly correct, more just, and more reliable than any state lines which may be formulated. Mr. Dean introduces a large number of tables and diagrams illustrating the relation of losses to premiums, losses to amount at risk, and the average rate, of twenty-two different states. All of these involve much careful labor and are instructive.

When, some time ago, the reviewer examined available fire insurance literature, and in the course of this examination came across the "Universal Schedule," he felt that he had reached an oasis in the desert of fire insurance confusion. He was consequently not a little surprised to have this schedule referred to by Mr. Dean as "an

interesting experiment in the wholesale destruction of fundamental principles and established relations." One of Mr. Dean's objections to the "Universal Schedule" is that it abolishes the autonomy of the states. Will this country ever have a scientific basis of fire rates until this autonomy has been abolished? This and other criticisms of the "Universal Schedule" contained in *Fire Rating as a Science* called forth a reply from Mr. F. C. Moore, president of the Continental and chairman of the committee which edited the "Universal Schedule." All of this controversy, embracing about a dozen contributions, was published in the *Insurance Field* (weekly) for 1901, from March 21 to May 23, inclusive. The reviewer does not consider himself qualified to decide the questions at issue, nor would it be proper to do so; however, he does not hesitate to say that nothing more valuable than this controversy has ever been published touching upon the fundamental principles of fire rates. Mr. Dean's books as well as the "Universal Schedule" should be interpreted in the light of these controversial essays. Both deserve to be studied with care by everyone desirous of learning more about fire insurance, and no one will spend time over them without profiting much thereby.

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*Essai sur la théorie générale de la monnaie.* By ALBERT AUPETIT.  
Paris: Guillaumin et C<sup>ie</sup>, 1901. 8vo, pp. 295.

THIS is a conservative and in the main a careful study of monetary theory. Not much that is new, either in the data of the subject or in its doctrinal aspects, is adduced; though for most readers this judgment will have to rest upon their faith in the author. M. Aupetit makes no claim to any original contribution to the subject other than that which is by very necessity implied in his method of treatment, which consists in the attempt to show how the two distinct lines of investigation—the mathematical and the theoretical-statistical—lead up to identical conclusions. If, therefore, there is nothing new in the non-mathematical part of the book, those of us who are unable to understand the first part and could not, even did the press work in all cases fulfill the primary condition of legibility, are permitted to judge that the same thing is true of the first part, and that the value of the work is in the very establishment of the proposition that the two lines of investigation concur in results. Certainly the conclusions reached

gain in authority if it be indeed true that two really distinct lines of investigation have been followed. Until the mathematical economists are better agreed as to whether they are employing a distinct method of research or rather merely a peculiar manner of exposition, laymen will be entitled to suspend judgment.

In theory M. Aupetit is a bi-metallist, accepting and supporting the usual allied or tributary doctrines. The quantitative or quantity theory—which is it?—is accepted practically without discussion and in naïve disregard of the fact, that in other parts of the world this question is seriously, perhaps even bitterly, in controversy. The book contains well selected, and for the most part, well considered tabulations of statistical material deduced, however, not from the author's own researches but reproduced from the work of acknowledged specialists in statistical investigation. But it is not a little surprising to find that in the discussion of the fall in prices following upon the panic of 1873, M. Aupetit makes no mention of the panic, and attributes the fall entirely to the diminution of coinage material due to the exclusion of silver from the mints.

The work contains neither index nor serviceable table of contents.

H. J. DAVENPORT.

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*Les banques de dépôt, les banques de crédit, et les sociétés financières.*

By ANDRÉ E. SAYOUS. Paris: L. Larose, 1901. 12mo, pp. 339.

MOST of the French and German economists who have written on banking have chiefly devoted their attention to the various questions connected with the issue of notes, and have said little upon the other aspect of banking so much discussed in the United States—the function of furnishing a deposit currency and of guaranteeing the soundness of property, thus turning it into immediate means of payment. This lacuna, left in foreign banking literature, M. Sayous seeks partially to fill by the present handbook. He has sought to present a clear descriptive account of deposit banks and their functions, including such matters as the technique of foreign exchange, of clearing houses, of stock exchange transactions, and of the issue of securities. The author's arrangement of material is happy. He begins with a brief analysis of the deposit function and compares it with the duties performed by other financial organizations. This is his *introduction*. In

the *première partie*, is included the technical matter already referred to, which forms the *pièce de résistance*. The *seconde partie* closes the volume, and is occupied with a brief survey of a few general problems of banking organization, and with a comparative description of the banking systems of France, Germany, and England.

There are two main points of view from which M. Sayous's work may be considered. It may be regarded as a practical manual for the student of financial affairs, or it may be looked at as, in part, a theoretical study of the mechanism of commerce. It might have been well if the author had confined his attention to one or the other of these two different lines of study, though he could perhaps respond with some force that the limited amount of theory that he gives is necessary for the complete comprehension of the practical portion of the book. As a study of the actual workings of credit institutions, there is little unfavorable criticism of the volume to be offered. The accounts of the various operations studied are clear and seem in general to be correct. They are well arranged and are likely to be serviceable to students, though it would have been an improvement if more reprints of credit documents could have been employed. Such a change would have been more in harmony with the modern mode of dealing with these subjects. As a work of original reference, the book will probably have little value for Americans, since the field is already occupied by several more or less comprehensive studies on the same topic. In French, as the author himself has suggested, the soil he breaks is more nearly virgin; though he seems to be unfamiliar with Arnauné's *La monnaie, le crédit, et le change*, which covers some of the same ground. The present volume may be useful, however, even in this country, as affording a means of comparing our own commercial usages with those of France. This would be still more the case, were it longer.

Criticism of the more theoretical portions of the book must be less favorable. As the title implies, the author recognizes in general three kinds of institutions as coming within the scope of his treatment, the *banques de dépôt*, corresponding generally in their functions to the national and state banks of the United States, the *banques de crédit* by which he refers to a class of institutions corresponding to our loan and trust companies, and the *sociétés financières* which resemble the investment companies of the present day. It is with the different modes of organizing these credit institutions with a view to performing the

transactions set forth in the first part that M. Sayous occupies his later pages. He discriminates with care between the different species of business that may properly be undertaken with the various modes of organization and shows clearly to what operations most attention may safely be given under certain circumstances. Probably the economic student will be more interested in those portions of the discussion that bear on the deposit function than in any others, for the author is clearer and more detailed in his treatment of the deposit than he is elsewhere. He does not offer any original or really fresh matter, but he introduces some discriminations that would prove useful if the form of banking accounts permitted the student always to observe them—as unfortunately it does not, in America. Thus, for example, a valuable discrimination between different classes of deposits according to their origin is laid down as fundamental. Yet, despite this careful classification, there is not always a proper recognition of the real nature of the deposit and its economic purpose. The description of French, German, and English banks offers no salient features. The main criticism upon this part must be its superficiality and lack of freshness.

It may be said of *Les banques de dépôt* that it is a good third-class book—a useful compilation and classification of familiar material. It is one of the books to be tasted, rather than swallowed, or chewed and digested. Unpretentious, M. Sayous's work will disappoint no one and will be convenient and instructive to many.

H. PARKER WILLIS.

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*Die Vorgänge am Edelmetallmarkte in den Jahren 1870–1873.* By DR. MAX J. BONN. Stuttgart: J. G. Cotta'sche Buchhandlung, Nachfolger, 1900. 12mo. pp. 128.

THIS monograph is the fortieth number of the *Münchener Volkswirtschaftliche Studien*, and represents work done by the author in the economic seminar of the University of Munich. The author's object has been that of presenting a somewhat detailed study of the events in the gold and silver market during the years 1870–1873, with a view to ascertaining just which ones exerted a depressing influence on the price of silver. There is a strong controversial tone throughout the book, and the general *motif* seems to be violent opposition to bimetallism.



Dr. Bonn's first effort, before beginning to analyze the events of the years 1870-1873, is to state and criticise the position of the bimetallists on the causes of the decline in the value of silver. Quoting from Arendt and Cernuschi he easily shows that :

There was, according to this [the bimetallic] doctrine, a time at which the monetary legislation of the more important countries caused a sort of constant and unlimited demand for silver, at a fixed price, and so set a determinate limit to any tendency of silver to decline. When, therefore, the monetary legislation of the controlling nations turned to the side of gold, silver lost . . . that firm support, that unlimited demand, at a fixed price, furnished by the public mints.

In further elucidation of the bimetallic position, Dr. Bonn points out the universality of the claim that it was primarily the existence of a bimetallic system in France that maintained the parity between gold and silver, at the sacerdotal ratio of 15.5 : 1 ; and, having thus set forth the classic case for silver, he proceeds to an analysis of the actual conditions. After reviewing the history of the French monetary system from 1803-1870, he concludes that it affords no warrant for the argument of the bimetallists concerning the influence of French demand in maintaining price, but quite the reverse. We may agree with Dr. Bonn's conclusions, as we might with the atomic theory of Lucretius—he is perhaps nearly right, but his means of demonstration are inadequate. There is in this part of his discussion scarcely a trace of reliance upon the original French documents with which this whole argument—so important to the truth or falsity of theoretical bimetalism—must stand or fall. A few references to the report of the German Silver Commission, some quotations from Lexis, and a long abstract from the work of Helfferich—secondary sources, every one, so far as France is concerned—are all he has to offer. Nor is there more weight in his brief for the advocates of the single standard than may be found in a dozen other discussions within the reach of every student. The author is not very satisfactory when he undertakes to discuss the monetary history of the years 1870-1873 and the cause of the fall in the value of silver. He is clear in stating the bimetallic argument in its classical form, and the equally classical reply ; but, beyond a few italics and German interjections, he adds no new weight to the side of the controversy he advocates. Here, also, he confines his attention to sound German authorities on his own side and, beyond a passing mention of Laveleye, does not hint at the existence of French or Belgian writers.

Better work is done in the detailed discussion of events in the market for the precious metals, with which the remainder of the work is occupied. There is some rather neat use of statistics showing the movements of the precious metals, and intelligent inferences are drawn regarding the effect of these movements upon the ratio. On the other hand, the author has not neglected the statistics of gold and silver production nor the course of political events nor the effects of legislation; though, naturally, less attention is paid to these latter factors. Some chronological tables, presented by way of easy review of the occurrences of the time, are especially to be commended. While it is probably true that a chronological method of discussing the years in question is far from being ideal, it must be said that in Dr. Bonn's hands the story moves with considerable cumulative effect and leads naturally and convincingly to the conclusion that:

It was not the abolition of the bimetallic system that first gave the signal for the first decline in the price of silver, four pence, during the years 1870-1873. It was a previous fall in the price, resulting from uncertainty of the silver market, and the fear of an increased supply, that necessitated the abolition of the French double standard.

Throughout the whole treatment, however, there is an absence of references and citations that is trying to the careful reader, and is probably responsible for a number of manifest errors that appear in the statistics and tables. The weakness displayed in the earlier part of the monograph reappears toward the end, where the author, in endeavoring to sum up his conclusions and to apply his results to the bimetallic problem, shows once more a tendency to lean heavily upon a few secondary sources of information.

In general, Dr. Bonn's monograph contributes little of fresh interest to the problem it treats. Some portions of it may be convenient for reference and there are passages that show skill in the handling and presentation of material, but a 'prentice hand is too apparent, and there is often a tendency to write with the shears rather than with the pen. On the whole, *Schwamm darüber!*

H. P. W.

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*Notes sur le productivisme et le comptabilisme.* By ERNEST SOLVAY.  
Bruxelles: Henri Lamertin, 1900. 8vo, pp. 172.

SEVERAL Belgian economists and sociologists—notably MM. Hector Denis, Ernest Solvay, and Guillaume de Greef—have, at

various times during the last few years, put forth arguments in favor of a plan to which they gave the title "social comptabilism." Of the members of the group, M. Solvay has always seemed to be most completely under the influence of the new idea, and his utterances on the subject have generally indicated a hopeless infatuation. The impression created by his former writings is by no means relieved in this volume of *notes*, a collection of essays,—chiefly reprinted from the *Annales de l'Institut des Sciences Sociales*—of parliamentary speeches, and of various *obiter dicta*. It must be confessed that it has always been open to doubt, just how much of his talk was meant as sober earnest by M. Solvay. But the appearance of this collection, including as it does additional light on the subject of "productivism," may be taken perhaps as a pledge of the author's seriousness, and may entitle his plan to brief analysis and criticism by economists.

But what is "comptabilism?" Put in this cold form, the question might perhaps prove a knock-down blow even for M. Solvay himself, for the topic seems to be enwrapped with so complicated a swaddling of quaint and curious sociological verbiage and terminology that the lay reader has difficulty in disentangling the author's new-born idea. Stated roughly, however, the essential feature of "comptabilism" seems to be a system for making all payments and transfers of values without the use of money. And in this form the notion, far from being new, appears as a discredited old derelict, in America at least, since it is precisely analogous to what has long been known as "mutual banking." Money is to be abolished and in its place is substituted a system of government currency, issued against a pledge of property, synchronous with the transactions for whose consummation it is issued, and easily withdrawn when the need for it has passed. The idea is the same, whether we suppose with the "mutual bankers" that the currency is issued in the form of greenbacks, or with the "comptabilists" that it takes the form of checks drawn upon credits granted to check-book holders and cleared in a government "comptabilist" establishment.

An elaborate criticism of the theory behind this notion would be superfluous. Yet it may be noted how M. Solvay seeks to avoid the rock upon which the "mutual bankers" have always split. The point of difficulty in the "system" is the question: How dispense with a metallic basis; in other words, how get a clear notion of the standard of value, if the precious metals be absolutely discarded? To this

query M. Solvay responds with some very curious reasoning. After all, he says, the value of money is largely conventional. An exchange is merely the transfer of a stamped substance called a coin for another substance that has been put into some form which fits it for everyday use. The respective usefulness or desirability of the two substances determines the proportions in which they exchange. But this usefulness or desirability in the case of money depends upon the fact that it serves a social purpose, by acting as a medium of exchange. Any other substance properly marked, limited in quantity, etc., would have the same value and answer every purpose. Bryan himself could not have spoken more oracularly. But, unlike Bryan, M. Solvay really comes at last to the theoretical point at issue :

The mathematical fiction . . . of invariability in the comptabilist unit is legitimate. It is clear that a being of infinite power could at a specified moment of time, fix at any or every place the value of an indefinite number of things whose value varies, expressing such values as functions of the value of some one of these things, taken as unity, and their value so fixed would be constant during a time infinitely short in duration. From the instant when such a unit had been so chosen and employed, though it had had in fact only a momentary existence it would nevertheless remain unchangeable in time and space. It would be the abstract unit of which we have been in search.

How should we, for instance, know that silver has fallen in value; that the five-franc piece is not really worth today more than about three francs, if what we call the franc had not retained its original value, thus assuming the character of an absolute standard? Does anyone say that it is known by comparison with the value of gold? But, though the value of gold may be less variable than that of silver, it varies nevertheless. And can anyone believe that, if the gold standard had never existed, we should not be precisely at the same point, so far as concerns perfect knowledge of the actual value of the five-franc piece? To put the question is to answer it in the affirmative, of course : the metal has fallen in value, the unit has not, it is invariable.

Probably this reasoning could not readily be followed by any save a true inflationist. It recalls some of the metaphysical subtleties of the *First Battle*, and criticism may be dispensed with. It is interesting, however, to note the process by which M. Solvay proposes to pass from the "barbarous" system where money is used to a régime of pure "comptabilism." He suggests that the national bank of Belgium be turned into a "comptabilist" institution which shall deliver to individual, corporations, etc., check or account books, which they may

use in drawing upon it, to an amount previously fixed by their hypothecating with the bank goods to the same amount, or leaving with it their own notes guaranteed by some responsible third party. These checks or accounts are then to be offset against one another by the bank, and new books issued to those owning balances after settlement of accounts.

Curious as is the idea of "comptabilism," the concept "productivism" is still more difficult to unravel. It appears to be the pursuit of such a policy on the part of society as will result in keying the productive capacity of every individual up to the highest pitch, by giving to him such training and industrial opportunity as will enable him to make the "best" use of his abilities—an idea reminiscent of the socialist law of distribution, "to each according to his needs." This conception is expressed in the vague "law" laid down by M. Solvay, that "Social progress obeys the principle of satisfying the personal interest of the average social man." Just what the meaning of such a statement might be is perhaps not very clear, though some notion of the practical application of the idea is found in M. Solvay's *Productivist Formula*, where it is set forth that each communal administration should seek to take stock of, guide, and educate such capacities in the inhabitants as will be likely to meet social needs of a universal character. To this end, the departments of public administration should begin to extend their activities, taking charge of natural monopolies, and seeking to afford full scope for abilities in government service. Such a policy would mean equality of opportunity to all.

Further criticism of such a volume is needless. It is little else than a host of familiar economic errors, masquerading in a *soi-disant* scientific guise under a mask of sociologic terms and obscurations.

H. P. W.

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*Commercial Federation and Colonial Trade Policy.* By JOHN DAVIDSON. London: Swan Sonnenschein & Co., 1900. 12mo, pp. 155.

IN this work Professor Davidson discusses the commercial relations of colonies, in especial those of Great Britain, with the mother country. Herein, he thinks, lies the greatest and most permanent of all colonial questions. Other points of interest in connection with colonies—

the matter of self-government, the treatment of natives, the land grant system and so on—have reached a more or less practical conclusion. The commercial question alone remains a problem of the hour.

The author devotes the first two chapters of his book to a review of the historical side of his subject. He traces the development of the mercantile policy, culminating in the complicated restrictions which hampered colonial trade in the eighteenth century, and describes the decline of the system, ending with the abolition of trade regulations and the repeal of the navigation laws. The granting of self-government to the colonies in the middle of the nineteenth century entailed as its logical consequence the permission to them to regulate their own tariffs. This they have proceeded to do with the result that the British Empire, while politically a unit, is separated in a commercial sense into a number of distinct bodies.

The new self-consciousness of the empire which marks the close of the century, and the consequent desire for complete imperial unity is leading to a demand for a readjustment of commercial relations which will bring about a consolidation of all the British dominions into a commercial unit. The proposals made to attain this object, says Professor Davidson, are mainly of two classes, first, the proposition of complete free trade within the whole empire and secondly the proposition of establishing preferential duties within all British dominions as against the rest of the world. The writer admits neither of these suggestions as a practical solution of the question. The first, that of general free trade, he regards as a purely academic idea. The varying economic situations of the colonies, together with the absolute necessity for raising colonial revenue by indirect taxation, put such a proposal quite outside of the field of practical politics. The preferential duties, on the other hand, could never be adopted by the mother country. The colonies might willingly accept such a plan. Indeed Canada, in a tentative way, has already done so in the preferential tariffs (on certain articles) of 1897 and 1899. To England, however, such a course would appear entirely reactionary and contrary to the national policy. Professor Davidson suggests as the best solution of the question the granting of heavy subsidies to freight lines of steamers. This would mean cheap transportation for colonial produce, and would enable the colonies to oust foreign competitors from the British markets. It would also lead to the development of the vast natural resources of the colonies, which would contribute much to the greatness of the empire.

The book contains some further discussion of the special relations of Canada to the empire and the complete estrangement of Canadian sentiment from all idea of annexation to the United States. The work concludes with a chapter, mainly statistical, treating of the extent to which trade may be said to follow the flag.

Professor Davidson has occupied for some ten years past the chair of political economy in the university of New Brunswick, and during this time has devoted much attention to the study of colonial problems and to the economic situation of Canada. He is therefore qualified to speak with a certain amount of authority on the subject of the commercial future of the British colonies.

STEPHEN B. LEACOCK.

MAGILL UNIVERSITY.

*Annuaire de la législation du travail.* Publié par l'Office du Travail de Belgique. 3<sup>e</sup> année, 1899. Bruxelles: J. Leliegue & Cie., 1900. 8vo, pp. xiv + 563.

THE year 1899 was not characterized by much labor legislation of great importance, either in the United States or Europe. Lawmaking in this field was generally limited to perfecting and, in a few cases extending, the great enactments of preceding years. In Germany the workmen's insurance law was amended. In France the employers' liability act was supplemented by ordinance, and in Great Britain the factory laws were variously but not very essentially modified.

In the United States the act of chief moment was the much discussed Colorado law which limited to eight hours the day's work in mines and smelters. Two states (Illinois and Missouri) provided for the establishment of free public employment bureaus. In Belgium an act of considerable significance empowers the executive to issue edicts for securing the health and safety of workmen in all industrial and commercial pursuits, whereas the exercise of this power had been allowed heretofore only in certain occupations legally declared dangerous. It is not without significance, also, that the Russian government has created a "Superior Council for Industry and Mines," charged with the duty of regulating the affairs of mines and workshops as to hours of labor, the hiring of laborers, and other relations of employers and workmen, the health and safety of the work people, etc. These powers are subject, of course, to the oversight of the various ministers of state.

A. P. WINSTON.

*Factory People and Their Employers: How Their Relations are made Pleasant and Profitable.* A Handbook of practical methods of improving Factory conditions and the Relations of Employer and Employee. By EDWIN L. SHUEY. New York: Lentilhon & Co., 1900. 16mo. pp. x + 224.

THIS excellent little manual is intended to be of service to "thoughtful people—in developing plans" for the improvement of their own communities. Of the three ways by which an employer may share his good fortune with the community, viz., by gifts for educational and philanthropic purposes, by sharing of profits, and by "daily sharing through personal advantages," only the latter is discussed. The arrangement of this is such as to make it an excellent complement to such a book as Gilman's *Dividend to Labor*, where the workings of the different paternal institutions developed by a given employer are described one after the other. Shuey gives typical cases of the employment of one institution after the other, thus making it possible for the reader to secure the information relating to each in the most convenient form.

Chapters I–IV are introductory and deal in a general way with "essential principles" and the conditions to be observed in developing a paternal institution. Chapter v, "How Manufacturer's Interest has been Manifested," deals with typical American cases and forms the body of the book. In it is shown how employers have evinced their interest by improving the plant and by providing baths, lockers, lunch-rooms, etc., for the personal comfort of their employees; by providing opportunities in the way of libraries and night and day classes for mental and moral training; by shortening the hours of labor for women and providing many conveniences for their special comfort; by establishing savings, pension and loan funds, homes for the aged, etc., and by erecting houses and establishing kindergartens, schools, libraries, and playgrounds. Chapter vi shows how the employees have evinced their interest by organizing clubs, literary and musical societies, and relief associations, and by other forms of co-operative effort. Chapters vii and viii deal in a very summary manner with "Results" and "Opinions." Finally there is added the name and location of eighty-nine firms and corporations mentioned in the text so that those interested in securing details with regard to any special point may know at once where to apply. The index is good.



Because of his intimate and first-hand acquaintance with institutions of the kind described, the author is well equipped for the work undertaken. The book will be recognized as eminently sane by those not imbued with the idea that "class struggle" is a necessity. The author does "not assume that these methods have already solved the labor questions, but holds [that] they are certainly a valuable contribution to the development of those better conditions for which everyone hopes in the near future."

H. A. MILLIS.

# THE JOURNAL OF POLITICAL ECONOMY

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## THE EARLIER COMMERCIAL POLICY OF THE UNITED STATES.

"THE chief advantages expected in Europe from American Independence," wrote Madison to Lafayette in 1785, "center in the revolution it was to produce in the commerce between the new and the old world."<sup>1</sup> What Madison here had in mind was not so much the increased volume or altered direction of American trade, it was rather the shock that men thought would be given by the policy of the young republic to the maxims of commerce that had shaped the legislation of Europe for so many generations. It is in the works of Turgot that "the chief advantages expected in Europe" are most clearly detailed. To him the approaching independence of America was visible earlier even than to the colonists themselves, and he hoped and did not hesitate to predict that it would have results at which the politicians of Europe would be filled with dismay. In a letter to Dean Tucker, as early as 1770, Turgot compliments him on being almost the only English author

Who has known and felt the advantages of free commerce, and who has not been seduced by the puerile and suicidal illusions of a commerce fettered

<sup>1</sup>*Works*, Vol. I, p. 139.

and exclusive. . . . I see with joy as a citizen of the world an event approaching which more than all the books of philosophers will dissipate the phantom of the jealousy of commerce. I allude to the separation of your colonies from the mother country, which will soon be followed by that of all America from mother Europe. Then the discovery of that part of the world will become really useful.

In his last written state paper,<sup>1</sup> a memorial to the king in 1776, he is more specific in his predictions of the rôle the young republic would play:

It is the interest of all peoples [he says] that commerce should be everywhere free and exempt from duties. The first nation giving to others an example of this humane and enlightened policy by liberating its productions, its industry, its commerce from all prohibitions, and all duties, will raise herself rapidly to the very highest prosperity, and will soon compel other nations to imitate her to the great advantage of the whole world.

The nation destined to do this was America, by whose independence "that delusion which for two centuries has rocked the cradle of our politicians will be dissipated." In short the opinion of Turgot was that America must necessarily be a nation of free traders, and that as soon as she became independent she must cause a revolution in the world's commerce; for by throwing open her own ports she would force other nations to do likewise, and it would then be discovered that the whole system of exclusion and monopoly that had been dominant for centuries was founded on an absolute delusion.

It is well known that these expectations were not confined to Europe. With the exception of Hamilton there was not one of the American leaders at the time of the Revolution who was not inclined to free trade. Was it not indeed the commercial restrictions of England that formed one of our bitterest complaints against her? Was it not essential to our well-being that we should have open markets for the sale of raw materials, which we produced in abundance, and for the purchase of manufactured supplies, which we hardly produced at all? And was not the value of our trade sufficient to justify hopes that if we threw open our ports on easy terms to foreigners, they would

<sup>1</sup> TURGOT, *Oeuvres*, Vol. II, pp. 551-85.

yield us reciprocal privileges in theirs? Surely if industrial conditions, political conjuncture, and public sentiment afford any basis for prophecy, it would seem that the prediction of Turgot was well grounded.

And yet seldom has any forecast of the future been so completely falsified by the course of events. Instead of leading the world to the adoption of a liberal commercial policy, America became a main champion of the policy of restriction, and "the chief advantages expected in Europe" have not been reaped to the present day. I believe that no consecutive explanation of this unlooked for development has ever been given. There are, it is true, books enough on American diplomacy to fill a library, and we have tariff histories galore, as well as many monographs of varying degrees of excellency on other phases of American commercial policy. But one looks through them in vain for an adequate description of the position taken by the United States in earlier days toward the hidebound policy that then prevailed in Europe, for an explanation of our failure to break down that policy, and for the effect of this failure on our own legislation. It is the purpose of this paper merely to bridge and not to fill this gap in our commercial history. To do justice to the subject would require more space than is here available. In view, however, of the great attention to all matters relating to our commercial policy that has been excited in recent years both at home and abroad by the phenomenal growth of our foreign trade, even so superficial a treatment, as is here attempted, will perhaps not fail to be of some interest and assistance to the general reader.

In accordance with a universal expectation one of the earliest acts of the American government after deciding upon war with England was to declare our ports open to the merchants of all friendly nations. Lofty have been the flights of grandiloquence indulged in by most of our history books in commenting on this act. It has been held up to the eyes of admiring readers as an illustration of the liberal and enlightened course that this

"youngest teeméd star" in the firmanent of nations was determined to pursue. In reality, however, the act was a mere matter of course. Foreign merchants gained by it nothing that they were not entitled to expect and were not actually granted by all civilized independent states. "The right of admission into ports for the purposes of trade and the general liberty of commerce," said Grenville to Jay in 1794, "are rights now generally acknowledged to be incident to a state of amity and good correspondence."<sup>1</sup> The whole purport of the act, therefore, was merely to nullify the monopoly of our commerce that had previously been claimed by England. Foreign merchants were henceforth free to engage in the American trade in the same sense in which they were free to engage in the trade to France, England, or Spain; they might enter our ports and buy and sell and get gain, but in all their dealings they were still subject to whatever regulations, burdens, or restrictions America saw fit to impose. Whether or not then the removal of the restrictions imposed by England would really make for freedom would depend on the restrictions substituted for them by the colonies themselves.

The importance of this matter was appreciated by the government, and very soon after independence was declared, Congress undertook to determine what regulations would be expedient and to shape for the nation a definite commercial policy. Congress, it is true, was not empowered at that time to legislate with regard to the regulations of foreign trade, but it could conclude treaties, and these treaties would be binding on the separate states, and they might thus be restrained from laying any imposts or duties that Congress disapproved. As early, therefore, as September 17, 1776, "Congress took into consideration the plan of treaties to be proposed to foreign nations with the amendments agreed to by the committee of the whole." The result of the discussion that then took place was the adoption of a plan that was to be proposed to France, the nation whose favor we were then most anxious to conciliate. According to this plan French merchants were to be free from all duties in

<sup>1</sup>*American State Papers; Foreign Relations*, Vol. I, p. 493.

this country except those that were paid by natives and were to enjoy all other rights in commerce and navigation that were enjoyed by natives, on condition that reciprocal rights and privileges were granted to American merchants trading to France.<sup>1</sup>

It is no exaggeration to say that the proposals contained in this plan mark the beginning of a new epoch in the history of commercial policy. Mably had summed up the doctrine that had hitherto been dominant in saying that no commercial treaty should be negotiated unless some favorable circumstance enabled a nation to demand a privilege for which it was not bound to make an equivalent concession. Or, as von Justi, who was professor at Göttingen in 1755, had expressed it :

The main object of every commercial agreement [that we make] must be to win the balance in trading ; just as this is likewise the purpose of every people, unless it is entirely idiotic, that negotiates with us. It all depends, therefore, on who can outwit the other.

The United States was the first modern nation officially to abjure this doctrine, and to offer to the citizens or subjects of a foreign nation in return for a like concession on its part the same commercial privileges in this country that were enjoyed by natives. It should be carefully noted, however, that the policy thus inaugurated fell far short of what is now considered "free trade." According to the plan of treaties no effort was to be made to remove the prohibitions of many articles of American produce that existed in some foreign countries, nor was anything to be said about the heavy import duties that were levied in them all. And on the other hand we by no means bound ourselves to refrain from legislation designed to restrict, control, limit, or tax the volume or variety of our trade, if ever such legislation should seem to us expedient. On the contrary, the principle was still recognized that every country was justified in making all general laws and regulations in regard to its foreign trade that seemed good, and all that was contended for was that these laws should be really general, applying to

<sup>1</sup> *Secret Journal of Congress, Foreign Affairs*, Vol. II, p. 6.

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natives of the country adopting them in the same way as to foreigners.

In the negotiations with France following the formation of the plan not all even of these moderate demands were secured. The instructions given to our commissioners—Franklin, Deane, and Arthur Lee—urged them to use every means in their power to win the acceptance of our proposals. If, however, the King of France refused to the citizens of the United States the privileges enumerated, then those privileges were not to be offered to French subjects; but as an alternative the commissioners were to propose that each party should put the other on the footing of the most favored foreign nation. It was only this alternative that France was prepared to accept. In the treaty of 1778,

His Most Christian Majesty and the United States engage mutually not to grant any particular favor to other nations in respect of commerce and navigation which shall not immediately become common to the other party, who shall enjoy the same favor freely, if the concession was freely made, or on allowing the same compensation if the concession was conditional.

It was further agreed that neither party should levy duties that discriminated between its own merchants and merchants of the other party except on the basis of the most favored nation, and that each should be at liberty to have consuls in the ports of the other. In addition to these agreements American merchants were granted an exemption from certain French tonnage duties, and free ports were assigned them in France and the French colonies where they might land and deposit their merchandise.

There is nothing new in these stipulations. The importance of the treaty to students of commercial policy consists, not in the regulations actually agreed on, but in the principles expressed in the preamble. The two parties wished "to fix in an equitable and permanent manner the rules which ought to be followed relative to the correspondence and commerce" which they desired to establish.

His Most Christian Majesty and the said United States have judged that the said end could not be better obtained than by taking for the basis of their



agreement the most perfect equality and reciprocity, and by carefully avoiding all those burthensome preferences which are usually sources of debate, embarrassment, and discontent; and by leaving also each party at liberty to make respecting commerce and navigation those interior regulations which it shall find most convenient to itself; and by founding the advantage of commerce solely upon reciprocal utility and the just rules of free intercourse; reserving withal to each party the liberty of admitting at its pleasure other nations to a participation of the same advantages.

In this preamble one at least of the principles set forth in the American plan wins recognition, and for the first time in history independent nations voluntarily enter into an agreement to fix the rules governing their commerce in such a way as to found the advantage to be derived from it "solely upon reciprocal utility and the just rules of free intercourse."

These were high sentiments and the expression of a liberal policy. In view, however, of the slight concessions secured through the negotiations and the liberty reserved to each party of making such interior regulations as might be most convenient to itself, it would seem that the sounding words of the preamble had little significance. But a closer examination shows that such was not the case. The young nation had sufficiently announced her adherence to the doctrine that the advantages of commerce are mutual, founded "solely upon reciprocal utility;" she had proclaimed to the world her readiness to avoid burdensome preferences and to remove other restrictions as soon as the other powers showed a willingness to reciprocate; and if she had gained little by the treaty, she had likewise sacrificed little. The main result of it, as summed up by Franklin, was this:

The great principle . . . is a perfect equality and reciprocity, no advantage to be demanded by France, or privileges in commerce, which the states may not grant to any and every other nation.<sup>1</sup>

Although it was not unconditional free trade, then, that America was determined to advocate, it was a nearer approach to it than Europe was accustomed to; for through the principle of reciprocity she proposed to abolish exclusions, monopolies, and preferences, and thus to promote the advantages of both

<sup>1</sup> *Works*, Vol. VIII, pp. 239.



nations rather than "by outwitting the other" to secure some exclusive advantage for herself.

During the next few years the policy thus adopted was stated, reiterated, and insisted upon by our commissioners abroad and by Congress at home. In the autumn of 1779, when instructions were sent to John Adams for negotiating, as soon as opportunity should arise, a treaty of commerce with Great Britain, he was told to govern himself principally by that which had already been concluded with France. He was in no case to give up our right to share in the fisheries; but

In all other matters you are to govern yourself by your own discretion, as shall be most for the interest of these states, taking care that the said treaty be founded on principles of equality and reciprocity, so as to conduce to the mutual advantage of both nations, but not to the exclusion of others.<sup>1</sup>

And it was in accordance with the same policy that the commercial clauses of the treaty concluded three years later with Holland were practically identical with those contained in the treaty with France.

Meanwhile our commissioners were energetically propagating abroad the doctrine of unrestricted commerce. Franklin wrote, in 1781:

It is perhaps an erroneous opinion, but I find myself rather inclined to adopt that modern one, which supposes it best for every country to leave its trade entirely free from all encumbrances.<sup>2</sup>

More emphatically he wrote to Vergennes:

In general I would only observe that commerce, consisting in a mutual exchange of the necessities and conveniences of life, the more free and unrestrained it is the more it flourishes, and the happier are all the nations concerned in it. Most of the restraints put upon it in different countries seem to have been the projects of particulars for their private interest under pretense of public good.<sup>3</sup>

There did indeed seem at that time to be some chance that the prediction of Turgot would be fulfilled, that the influence of the western republic suddenly sprung into vigorous life would

<sup>1</sup> *Secret Journal of Congress*, Vol. II, p. 229.

<sup>2</sup> WHARTON, *Diplomatic Correspondence*, Vol. IV, p. 423.

<sup>3</sup> *Ibid.*, Vol. VI, p. 305.

totally change all the prevailing maxims of commerce. Certainly the strength of this influence was great. The trade of the United States was of increasing value and was eagerly desired by all commercial nations, most of whom perhaps even overestimated its value because of their previous exclusion from it. Moreover, the struggle for independence and the political doctrines that were being promulgated by the leaders of the young nation had attracted the attention of the whole civilized world. It was a new country, full of a new life, standing for new principles of politics; new principles of commerce were naturally expected from it, and whatever these new principles might be the old world was prepared to accord them at least a respectful hearing.

And yet, in spite of these apparently favorable conditions, the time was not yet ripe for the revolution Turgot had foreseen. In the political, as in the physical world, there is a *vis inertiae* to be reckoned with; the weight of the accumulated tradition, opinion, and practice of two centuries was not to be lightly set aside at the bidding of an untried government, however great might be the value of the trade it had to offer. The truth of this early became apparent to our commissioners abroad. John Adams, writing to Livingston in 1783, said:

The United States have propagated far and wide in Europe the ideas of liberty of navigation and commerce. The powers of Europe, however, cannot agree as yet in adopting them in their full extent.<sup>1</sup>

Castlereagh remarked to Adams's son thirty-three years later, that the wisdom of the English commercial system, in his own mind, was not unquestionable, but it was difficult to break down a policy so strongly supported by public opinion and by various interests.<sup>2</sup> The remark aptly describes the state of mind of the European cabinets where proposals were heard from the American commissioners in the first decade of the republic.

Some of the lesser European states, it is true, having little trade of their own, but being deeply interested in carrying the

<sup>1</sup> WHARTON, *Diplomatic Correspondence*, Vol. VI, p. 545.

<sup>2</sup> *American State Papers: Foreign Relations*, Vol. IV, p. 361.

commerce of other countries, were willing enough to meet us half way. The treaty with Sweden, for example, concluded in 1783, not only contained the most favored nation clause, but secured to each party the right to import and export all kinds of merchandise whatsoever. The more important commercial nations, however, were not yet prepared for such radical changes. Spain consistently refused to treat of commerce at all. France and the Netherlands were content, after the coming of peace, to abide by the provisions of the treaties made during the war. In England the proceedings were especially significant of the strength still left in the mercantilist principles.

As early as March, 1783, Pitt, realizing the necessity to English prosperity of recovering the American trade that had been lost by the war, presented in Parliament a bill framed after the liberal principles of the school of Adam Smith, in which he had been educated. The preamble declared "it highly expedient that the intercourse between Great Britain and the United States should be established on the most enlarged principles of reciprocal benefit." It opened to the vessels of the United States not only the ports of Great Britain and Ireland but also those of the British colonies in the West Indies and on the American continent. But the bill was bitterly opposed and finally defeated. Eden expressed the sense of the opposition in saying: "The bill will introduce a total revolution in our commercial system;" he pronounced reciprocity with the United States nearly impracticable, and denounced the whole plan as "utterly improper for it completely repeals the navigation act."<sup>1</sup> The Coalition Cabinet, that succeeded the Shelburne ministry about a month later, agreed to maintain the navigation act unimpaired. In Parliament Lord Sheffield warned them:

Let the ministers know the country is as tenacious of the navigation act as of the principles of Magna Charta. . . . They must reserve to our remaining dominions the exclusive trade to the West India islands.

And in his pamphlet on the American trade he said:

There should be no treaty with the American states, because they will

<sup>1</sup> BANCROFT, *History of the Constitution*, pp. 55, 56.

not put England on a better footing than France or Holland, and equal rights will be enjoyed of course without a treaty.<sup>1</sup>

After long discussion Parliament passed a bill authorizing the Crown to regulate, by Orders in Council, the trade between the British dominions and the United States, and it was thus that the commerce between the two nations was regulated until the general act of Parliament of 1788. The nature of these Orders shows that England was as yet unconvinced of the expediency of yielding to the American proposals for reciprocity. Great privileges were indeed granted in order to attract to the mother country the trade of her recalcitrant children, privileges which gave to our commerce an advantage over that of all other foreign nations; but they were not granted as a result of agreement nor in recognition of the principle that the advantages of commerce "are founded solely upon reciprocal utility and the just rules of free intercourse." Furthermore, they applied only to the trade with Great Britain and Ireland, for by the Order of 1783 the ports of the West Indies were closed to American merchants altogether. The result of the policy adopted in England was, therefore, the preservation of the main principles of the mercantile system unimpaired.

The United States, then, had "propagated far and wide in Europe the ideas of the liberty of navigation and commerce." The powers of Europe, however, "could not agree as yet in adopting them in their full extent." How was this failure to react upon the policy we were inclined to pursue?

With the coming of peace and the acknowledgment of independence Congress determined, in view of the ill success hitherto attending our diplomacy, to reconsider the plan that had been adopted in the summer of 1776. It was resolved, therefore, in May, 1784, after several months of discussion, that Adams, Franklin, and Jefferson should be commissioned to negotiate treaties with the commercial countries of Europe, and instructions previously drawn up by Jefferson himself<sup>2</sup> were

<sup>1</sup> *Ibid.*, pp. 60, 66.

<sup>2</sup> JEFFERSON, *Writings* (edited by Ford), Vol. III, pp. 355 ff.

adopted for their guidance. A comparison of these instructions with the Plan of Treaties shows how the hopes for reciprocity had moderated. No word was uttered about the mutual advantages of commerce nor the expediency of according equal rights to foreigners and natives. The only point of a strictly commercial character to be carefully stipulated was this, that in the direct trade between this country and another, whether sovereign or colonial, the vessels of each party should be free to engage, paying no other duty than was paid by the most favored nation.<sup>1</sup>

One treaty only was concluded under this revised plan, the treaty with Prussia of 1785. The contracting parties could afford in this case to display liberality, since the value of the trade between them was insignificant; and the American proposals were therefore granted. Prejudice, hard and unbending as coral reefs, surrounded the other nations of Europe and rendered impossible the access of the new principles America stood for. Our trade they wanted, but to get it they were willing to make no treaty securing to us a share of their own. In 1776 we had offered the same privileges to foreigners that were enjoyed by our own citizens, and invited other nations to do the same. During the ten succeeding years all the force of example, argument, and skillful diplomacy was exerted "to fix in an equitable and permanent manner the rules which ought to be followed relative to correspondence and commerce." But all to no purpose. For no treaty of commerce was to be made, Mably had once said :

À moins qu'on ne se trouve dans quelque circonstance heureuse qui autorise à demander quelque prérogative sans être obligé de l'acheter par une complaisance équivalente.

And the nations of Europe were still true to the doctrine thus bluntly expressed.

The reaction of our failure is strongly reflected in the correspondence of the American commissioners that had been sent abroad. Franklin, writing to Livingston of the closure of the West India ports, said :

<sup>1</sup> JEFFERSON, *Writings* (edited by Ford), Vol. III, p. 490.

If it should be persisted in, it will then be a matter worthy the attentive discussion of Congress whether it will be most prudent to retort with a similar regulation in order to force its repeal, . . . or let it pass without notice and leave it to its own inconvenience, or rather impracticability, in the execution, and to the complaints of the West India planters, who must all pay dearer for our produce under those restrictions.<sup>1</sup>

By 1785 John Adams, who was then attempting to negotiate a commercial treaty with England, became convinced that the only means of breaking down European restrictions lay in retaliation. On being asked by Pitt what he thought Great Britain ought to do, he had answered :

This country ought to prescribe to herself no other rule than to receive from America everything she can send as a remittance, in which case America will take as much of British productions as she can pay for.<sup>2</sup>

And to an English friend he wrote :

The United States are willing to throw wide open every port in their dominions to British ships, merchants, and merchandise, and I am ready in their behalf to pledge their faith in a treaty to this effect upon the reciprocal stipulation of this nation that her ports shall be equally open to our ships, merchants, and produce.<sup>3</sup>

But he was losing all hope that liberal principles would prevail, and gradually coming to the conclusion that self-preservation would force America to fall in with the restrictive policy of Europe. To Jay he wrote :

You will negotiate for reciprocities in commerce to very little purpose while the British ministers and merchants are certain that they will enjoy all the profits of our commerce under their own partial regulations. . . . Congress or the states might take such action as would insure them justice against the English. . . . It is a diplomatic axiom that "he always negotiates ill that is not in a position to make himself feared." . . . We have no means to make an impression on them but by commercial regulations which the vulgar may see strike essentially at their interests without injuring our own.<sup>4</sup>

A few months later his suggestions had become more explicit. In a letter to Jefferson he said :

I should be sorry to adopt a monopoly; but, driven to the necessity of it, I would not do things by halves. The French deserve it of us as much as

<sup>1</sup> FRANKLIN, *Works*, Vol. VIII, p. 535.

<sup>2</sup> BANCROFT, *History of the Constitution*, Vol. I, p. 205.

<sup>3</sup> ADAMS, *Works*, Vol. VIII, p. 383.

<sup>4</sup> *Ibid.*, Vol. VIII, p. 242.

the English, for they are as much enemies of our ships and mariners. Their navigation acts are not quite so severe as those of Spain, Portugal, and England (as relate to their colonies, I mean), but they are not much less so, and they discover as strong a lust to annihilate our navigation as anybody.<sup>1</sup>

To Jay:

If monopolies and exclusions are the only arms of defense against monopolies and exclusions, I would venture upon them without the fear of offending Dean Tucker and the ghost of Dr. Quesnay.<sup>2</sup>

And a little later :

They mean that America shall have no ships nor sailors to annoy their trade. . . . Patience will do no good ; nothing but reciprocal prohibitions and imposts will have any effect.<sup>3</sup>

And finally, despairing of success and wearied with his fruitless efforts, he wrote to Jay that "a life so useless to the public and so insipid to myself as mine is in Europe, has become a burden to me as well as to my countrymen."<sup>4</sup>

In the legislatures of the separate states the coldness that marked the reception of our proposals had an effect that was strong and immediate. Agricultural Virginia, the state that above all others was interested in maintaining free trade, expressed the sentiment of her sister states in denouncing (December 9, 1783) "a disposition on the part of Great Britain to gain partial advantages injurious to the rights of free commerce and repugnant to the principles of reciprocal interest and convenience which form the only permanent foundation of friendly intercourse."<sup>5</sup> She then led the way in retaliating against European restrictions, and by 1789 she had passed more acts relating to foreign trade than any other state. Massachusetts in 1782 had declared for free trade, but by 1786 she had a system of exclusion and monopoly that was highly developed. Other states were not slow to follow the lead of these, the most powerful and influential of the American commonwealths. It was mainly against Great Britain that their hostile acts were

<sup>1</sup> *Ibid.*, p. 292.

<sup>2</sup> BANCROFT, *History of the Constitution*, Vol. I, p. 203.

<sup>3</sup> ADAMS, *Works*, Vol. VIII, p. 206.

<sup>4</sup> *Ibid.*, p. 429.

<sup>5</sup> BANCROFT, *History of the Constitution*, Vol. I, p. 148.

levied, retaliation being sought for our exclusion from the West India trade. The laws passed for this purpose were numerous, partial, and various. On an average, an English ship of 400 tons coming to this country paid as tonnage duty about \$225, besides an additional duty on the goods she brought higher by about 2 per cent. than that paid on goods in American ships.<sup>1</sup>

The trend of public opinion on the failure of our efforts for reciprocity is as clearly marked in the expressions of individuals as in the proceedings of state legislatures. Madison, who was close in touch with the sentiments of his countrymen and well acquainted with the condition of foreign relations, may be taken to speak for the rest. Writing to Lafayette in 1785 from his plantation in Virginia, he reminds him that "the chief advantages expected in Europe from American independence center in the revolution it was to produce in the commerce between the new and the old world."<sup>2</sup> He regretted that the fossilized policy of the old world had prevented this revolution; and wrote to Monroe:

Much, indeed, it is to be wished, as I conceive, that no regulations of trade—that is to say, no restrictions or imposts whatever—were necessary. A perfect freedom is the system which would be my choice. But before such a system will be eligible for the United States, perhaps, they should be out of debt; before it will be attainable all other nations must concur in it.

He then roundly condemns the exclusion policy of Great Britain; and concludes that the only means against foreign restrictions will consist in "retaliative regulations of trade."<sup>3</sup>

It was evident that if Turgot's prediction was to be fulfilled, other means must be adopted than those America had hitherto tried. It appeared to contemporaries that the only other means was retaliation. "You will negotiate for reciprocities in commerce to very little purpose," John Adams had said, "while the British ministers and merchants are certain that they will enjoy all the profits of our commerce under their own partial regulations." To foreigners indeed there seemed little danger of

<sup>1</sup> *Report of Committee of Privy Council*, 1791, p. 9.

<sup>2</sup> MADISON, *Works*, Vol. I, p. 139.

<sup>3</sup> *Ibid.*, Vol. I, p. 169.



effective retaliation under the impotent and vacillating government that was established by the Articles of Confederation. "If an angel from heaven," said Adams, "should declare to this nation that our states will unite, retaliate, prohibit, or trade with France, they would not believe it."<sup>1</sup> But he himself thought otherwise: "The power to regulate the commerce of the whole will not probably be long withheld from Congress, and when that point shall be agreed to, you will begin to hear a cry in England for a treaty."<sup>2</sup>

It was not many months after this was written that the convention met to frame a new constitution which should give to Congress the power our diplomats deemed so essential. With justice have historians made prominent among the causes leading to this step: the failure of our diplomacy, the weakness of the states in their efforts at retaliation, the lack of co-ordination in their regulations, the necessity that our commercial policy should be national, not sectional, if it was to be successful. With the completion of the work of this convention a new era began in the history of our commercial policy as in the other phases of our national life.

Profiting by the experience of the preceding decade no immediate attempt was made by the new government to renew the negotiations with Europe that had failed so completely. President Washington did indeed request Morris, who was in London in 1790, to sound the British ministers informally as to arrangements "which might fix the commerce between the two nations on principles of reciprocal advantage." But "they avoided direct answers so as to satisfy Morris that they did not mean to enter into a treaty of commerce unless it could be extended into a treaty of alliance offensive and defensive, or unless in the event of a rupture with Spain."<sup>3</sup> Here during several years our diplomacy rested, for "the cry in England for a treaty," which Adams had anticipated, was not uttered.

But the cry had gone up in this country for retaliation;

<sup>1</sup> ADAMS, *Works*, Vol. VIII, p. 390.

<sup>2</sup> *Ibid.*, p. 391.

<sup>3</sup> *American State Papers: Foreign Relations*, Vol. I, p. 121.

monopoly was to be met by monopoly, restriction by restriction. The advocates of this policy, however, failed to realize the difficulties of it. To close to foreigners any of our ports, as many of theirs were closed to us, would mean the ruin of those ports and probably the immediate end of the union. To prohibit the import of foreign manufactures, while we could not produce such goods ourselves, would mean depriving our own people of many of the necessities of life. In the first session of Congress there was disagreement between the Senate and the House as to the proper course to be followed. In the House it was pointed out that the commercial advantages expected from independence had not been secured, that Great Britain still possessed the largest share of our commerce, no new channels had been opened to the other nations of Europe, and we had lost the trade we formerly carried on with the British West Indies. In order to force concessions, therefore, especially from Great Britain, members of the House were for imposing a discriminating tonnage duty, and for allowing a small reduction in the duty on distilled spirits in favor of countries in treaty with us. In the Senate, however, it was urged that if Great Britain still enjoyed the lion's share of our trade, she had retained it by legitimate means; for her merchants were better able than other foreigners to supply our wants and to dispose of our produce; familiarity with our language and laws facilitated their transactions with us, and as long intercourse had acquainted them with our commercial usages and the condition of our currency and trade, they were willing to give us longer credit than was customary elsewhere. Furthermore, although Great Britain objected to a treaty, her policy toward us—except in the matter of the colonial trade—was more liberal than that of any other nation. And finally, a measure so trivial as that proposed by the House could only irritate, without exciting either the interest or the fear of any country that it was levied against.<sup>1</sup>

The debates lasted for many weeks and resulted in the passage of two acts, one fixing a tariff of duties on imports, the

<sup>1</sup> MADISON, *Works*, Vol. I, pp. 481-3.

other imposing on tonnage a duty that discriminated against all foreign ships. There are few acts on our statute book the motives for which have been so voluminously and bitterly discussed as the motives for these. In the discussion it is the tariff act that has received the chief attention; and yet, both as immediately affecting the course of our commerce and as indicating the trend of our policy, it is perhaps the other act that has deserved it. Some writers have seen in them only a plan to raise revenue; others regard them as signifying the determination of our legislators to protect American industries; all agree that their passage was at least facilitated by the desire to retaliate against Europe for the coldness that had marked the reception of our proposals for reciprocity.

It is needless here to engage in a discussion that, though it sometimes sleeps, seems never likely to die. To determine accurately what motives outweighed in the breast of several hundred legislators representing widely different sectional and economic interests is a matter of extreme difficulty, and each student is likely to impute to them the motive he would fain have had them feel. It may be said, however, that the two acts are to be kept carefully apart and considered separately. With regard to the tariff law, whatever may have been the remoter benefits expected from it, certainly the immediate, the sufficient, indeed the compelling cause for its passage was the need of revenue. If it was intended to be retaliatory, it utterly failed of its purpose, for in England a committee of the Privy Council considered it moderate and just, and pronounced the duties imposed by it lower than those paid in Holland, France, or anywhere else in Europe.<sup>1</sup> It placed our own merchants and foreigners of all nations on the same footing; there was no discrimination, no exclusion, no attempt at monopoly. The most careful examination fails to show that it affected the volume, variety, or direction of our foreign trade in the slightest degree. The act, therefore, deserves to be considered as fiscal rather than commercial legislation. Not so with the navigation

<sup>1</sup> *Report of Committee of Privy Council, 1791, p. 29.*

act. This imposed on ships built and owned abroad a duty of fifty cents a ton, and on ships owned by foreigners but built in this country a duty of thirty cents, while ships both built and owned by Americans were to pay only six cents. Besides this, all goods imported in foreign ships were to pay a duty 10 per cent higher than goods imported in American ships. It is here then and not in the tariff act that we find a radical change of policy. "The frowns of Dean Tucker and the ghost of Dr. Chesnay" had lost the power to awe the makers of this law. It was a clear desertion of the principles of perfect equality and the abolition of discriminations and monopolies that we had heretofore professed.

And now was this change of policy due to the failure of our commissioners to win a favorable reception abroad for our proposals of reciprocity, a failure that compelled us for self-preservation to resort to monopoly; or was it rather a mere reversion to the prevailing spirit of the age, resulting from a belief that our previous policy had been wrong, and that the young republic like the ancient monarchies must look to selfish discrimination for prosperity? The answer to this question is not so easy as it would seem. There can be no doubt from what has been already said that members of Congress acutely felt the repulse of our diplomacy, and that ideas of retaliation were widely popular. And yet if the law had grown out of these ideas, would not some distinction have been made between the countries in treaty with us and those that were not? Would not a greater severity have been shown to vessels arriving from ports to which our own were not admitted than to vessels arriving from ports where our own entered freely, unburdened even by alien duties? Instead, however, of such distinctions being made all foreign vessels were placed on exactly the same footing. Vessels coming from France, a treaty country, from the British West Indies whence we were excluded, from England where by legislation our ships enjoyed great and exceptional favor—all paid a duty of 50 cents a ton with the additional duty of 10 per cent. on their cargoes. It is obvious that such a law as this was not intended

to be retaliatory; it is equally obvious that its purpose was to foster American shipbuilding and seafaring at the expense of foreign competitors.

If, however, this law did not result from the failure of our previous policy, the change of sentiment that it indicates appears singularly violent and sudden. But appearances in this case are deceptive. For even while they advocated free trade in its broadest sense, the leaders of American thought had not lost sight of the necessity of encouraging American shipping as the most effective means of defense. Franklin, for example, in the same letter to Livingston in which he expresses the opinion that the greatest prosperity would result from opening our ports on equal terms and free from all restrictions to all the nations of the world, adds :

The employing, however, of our own ships and raising a band of seamen among us, though it would not be a matter of so much private profit as some imagine, is nevertheless of political importance, and should have weight in considering the matter.<sup>1</sup>

Equally pregnant sentences might be quoted from the correspondence of Franklin's contemporaries. It is evident, then, that, although our first navigation act was strictly protective, it was on political rather than commercial grounds that it commended itself to the lawmakers. That the enthusiasm for it in the commercial sections of the country was heightened by the expectation of private profits there can be no doubt; that grave apprehensions existed in the agricultural sections lest it should cripple their trade by raising the cost of transportation is equally certain; but the law resulted neither from the selfish machinations of one interest nor the foolish altruism of the other, nor was it brought about—as has been sometimes stated—by a corrupt bargain between them; it was due to the belief that the preservation of our independence and the defense of our interests required a strong marine and a large body of experienced seamen. Just as the prime motive of the tariff act, therefore, was not commercial but fiscal, so the prime motive of the navigation

<sup>1</sup> FRANKLIN, *Works*, Vol. VIII, p. 536.

act was not commercial but political. And just as remoter and incidental effects were anticipated from the first so similar effects were anticipated from the second. And in both cases since man's motives for action are seldom unmixed, these remoter anticipations facilitated the passage of the laws.

But while these laws were alike in that neither of them was primarily intended as commercial legislation, they differed fundamentally in the effect they must actually have on trade if permitted to go into unchecked operation. The tariff act, as pointed out above, could affect our commerce in no perceptible degree, whereas the natural result of the navigation act would be to throw the carrying trade entirely into the hands of Americans. Now, the business of transporting goods across the sea has become at the present day an independent industry and is largely divorced from strictly mercantile pursuits. The volume, variety, and direction of a nation's commerce is therefore but slightly influenced by the nationality of those that carry it; and it is quite possible for all the carrying to be done by foreigners, while the real commercial business is strictly monopolized by native merchants. A century ago this was not the case. The shipowner of that day was likewise a merchant, and he that contrived the carrying to and fro was usually the man that also did the buying and selling and reaped the commercial profits. Perhaps the condition that prevailed will be made clearer by a concrete example. In 1820, owing to certain discriminating duties imposed by France, the transportation of goods between New Orleans and French ports had fallen almost entirely into hands of French shipowners. In protesting against these duties the American captains at New Orleans use these significant words:

Throwing the carrying trade from this place to France out of the hands of American shipowners naturally influences the trade in the same articles from American merchants into the same channel; the number of French vessels being continually augmented, naturally bring their owners in some degree to partake of it; everyone tries to push off some articles of goods to gain a freight for his ship and to pay for cotton and tobacco instead of furnishing money advances; French commission houses to transact this business

are daily multiplied, and adventurers with their "pacotilles" are daily crowding the port.<sup>1</sup>

Bearing in mind this close connection between merchants and shipowners, it is easy to realize the tremendous effect on commerce of a law that would give to natives a monopoly of the carrying trade.

Thus the summary of our national commercial policy until 1790 is this: We threw open our ports to all foreign nations, and endeavored to secure in their ports the privileges enjoyed by natives, offering them reciprocal privileges in America; when our proposals were rejected we threatened retaliation against their restrictions, but owing to our peculiar economic condition we were unable to carry out the threat; so we contented ourselves with imposing a small tax on our commerce to meet the expenses of the government and with attempting to give our merchants a monopoly of the carrying trade in order to build up a strong merchant marine for purposes of defense.

There now followed a period of twenty-five years during which the energy of our government was mainly occupied in defining, asserting, and maintaining our rights as neutrals in time of war abroad, in resisting the impressment of our sailors by Great Britain, and in attempting to recover the right to participate in the northern fisheries. It is unnecessary to consider these subjects here, partly because they are of a legal rather than commercial nature, and partly because they have been abundantly discussed elsewhere. But there were three other matters of permanent interest which received attention at the time, but which recent writers have almost entirely overlooked.

In the first place, it was deemed essential that such privileges as foreign nations allowed us in their home ports should be definitely stated and secured by treaty, and not be left subject to precarious legislation on their part. Secondly, it was the urgent desire of the government to acquire and likewise to secure by treaty a share for our merchants in the lucrative trade of the

<sup>1</sup> *American State Papers: Commerce and Navigation*, Vol. II, p. 412.

colonies held by the powers of Europe. And lastly, since the operation of our navigation act was impeded by foreign legislation, and did not afford the benefits expected from it, other means had to be sought in order to encourage our shipping.

After the consummate failure of our previous attempts, it was with much hesitation that the government determined to treat once more with foreign countries about commerce. Indeed, it was political conditions that forced us to reopen negotiations, and the commercial agreements arrived at during this period were only incidental to the settlement of matters of pressing importance in the field of politics. Thus, when Jay was sent to England in 1794, his instructions enumerated the points of a political nature that he was to attempt to settle, and if these were so accommodated as to promise a continuance of tranquillity, it was referred to his discretion whether he should listen to or propose the discussion of a commercial treaty.<sup>1</sup>

The instructions to Jay in defining both the demands and the concessions he was to make if he found England favorably disposed for a treaty of commerce, reveal the policy that the government was inclined to pursue. As the war of the French revolution had begun, a war that already threatened to bring great suffering to our ship owners, much emphasis was naturally laid on securing our rights as neutrals. Besides taking care of these, Jay was to demand reciprocity in navigation, particularly to the East and West Indies. Exactly what was meant by this is not clear, for except in the Indies, our ships enjoyed greater privileges in British ports than did British ships in ours. He was to require further, that our wheat, fish, and other staples be admitted on the same terms on which we admitted the staples of Great Britain. There is involved in this clause a principle that makes no previous appearance in our negotiations with foreign countries; it is no other, indeed, than the principle of "commercial reciprocity," in the sense now attached to the term. Heretofore, we had uttered no protest against the prohibition of particular commodities, nor against the imposition of high taxes on

<sup>1</sup> *American State Papers: Foreign Relations*, Vol. I, p. 473.



imports; on the contrary, we had expressly recognized the right of every nation to make such internal regulations of commerce as seemed to it good. The reciprocity we had sought before the passage of our navigation act meant merely that in such trade as was permitted, the natives of the countries engaged should be on the same footing, neither side being favored by legislation at the expense of the other. So accustomed, indeed, had Americans become since the infancy of the colonies, to the English corn laws and to high foreign tariffs that, like others, they regarded these things as matters to be regulated according to the discretion of each country for itself; and so long as the regulation was general and not discriminating in its nature, outsiders were deemed to have no right to interfere.

It was hardly expected by our government that these important demands would be granted by England. "This enumeration," it is said in the instructions, "presents generally, the objects which it is desirable to comprise in a commercial treaty; not that it is expected that one can be effected with so great a latitude of advantages."

For what had we to set against this "great latitude?" All that we were prepared to offer was included in the clause: "You may discuss the sale of prizes in our courts while we are neutral, and this, perhaps, may be added to the consideration that we have to give besides those of reciprocity." Our navigation act we were by no means prepared to repeal—which is additional evidence that it was not regarded as retaliatory. Jay, indeed, reported that Lord Grenville pressed the proposition to abolish alien duties of every sort between the two countries, "but strong objections," he added, "opposed my agreeing to it."<sup>1</sup> In other words, we demanded from England that she should throw open to us her colonial trade, should repeal her prohibitions, and should reduce her tariff to the level of ours, and in return we were willing that she should continue to trade with us subject to our own regulations, and should sell in our ports the prizes captured by her cruisers from France.

<sup>1</sup>*American State Papers: Foreign Relations*, Vol. I, p. 503.

About two months after his arrival in England, Jay accordingly drew up and sent to Grenville the outline of a commercial treaty. In it our demands were duly set forth, and in order that the duties might be made reciprocal, it was suggested that special articles should be negotiated and added to the convention as soon as possible. Grenville soon replied with a *counterprojet*; rejecting Jay's proposals, he offered as a substitute that neither party should in the future prohibit the importation from the other of any articles that were not prohibited at the time, and that neither should levy higher duties on goods imported from the other than upon similar goods coming from the most favored nation. He then expressed the willingness of his government to permit American ships of seventy tons and under to engage in the trade between the United States and the West Indies, but only on condition that Americans should not export to any foreign country goods commonly produced in the West Indies. After this interchange of proposals, many weeks were spent in discussion and correspondence; but although several important political matters were arranged, the only further commercial concession that Jay secured was permission for Americans to engage in the direct trade between their own country and the East Indies.

The displeasure in America with those clauses of the treaty resulting from the negotiations which related to the colonial trade is notorious. The consequent rejection of the clauses by the Senate left our commercial relations with Great Britain in exactly the same condition that had previously existed, with the single exception that commerce was now regulated no longer by legislation but by treaty.

Twelve years after Jay's mission, our relations with Great Britain had become so strained, chiefly owing to their practice of impressing American seamen, that commissioners were once more sent to treat with the English government. No alteration of commercial policy, however, is to be observed in the negotiations that took place, and as the treaty failed to settle the matter of impressment, President Jefferson refused even to send it to the Senate for discussion.

As the negotiations with England sufficiently explain the American commercial policy during this period, it is unnecessary to describe those that took place with other European nations. Suffice it to say: that Spain maintained its refusal to treat of commerce; that the treaty with Prussia was renewed in 1799; that the treaty with France was abrogated in 1800, and a new one was concluded which avoided the liberal sentiments formerly expressed, and secured to each party in its trade with the other merely the privileges enjoyed by the most favored nation. This retrogression from liberal principles in our commercial relations with France, was due partly to our strained political relations with that country, and partly to the exasperation occasioned in France by the failure to oust England from the American commerce, a failure that was attributed in large measure to our refusal to grant special advantages to French merchants and ship owners.

The second matter referred to above as exercising the attention of the government during this period was our commerce with the colonies held by the nations of Europe. It was the West India colonies of England, Spain, and France that chiefly concerned us. Our exchange of commodities with these islands was highly advantageous to both sides, and capable of great expansion. They took in 1790 about a third of all our exports, and paid for them partly in their own produce and partly in specie. Several, however, of our most important articles of export were prohibited in the islands by their respective home governments, and in time of peace our ships and merchants were forbidden to engage in the trade at all. The regulations of Spain were peculiarly severe. All ships engaged in the trade to her colonies must belong wholly to Spaniards, and all officers and two-thirds of the crew must be of the same nationality. Even for these the trade was limited to certain ports. Every article of the cargo must be registered before the vessel set sail, and during the voyage she must not touch at any intervening port, still less approach a foreign vessel. Goods shipped from the colonies could not be consigned to foreigners even if they were residing in Spain, nor could foreigners without a license

trade with the colonies in the name of their wives or relations, though these were Spanish subjects. In strong contrast with these regulations, the United States—except for the duties fixed by the two acts of 1789—restricted commerce with the West Indies in no way whatever. All our ports were open to the colonial trade, all colonial commodities were admitted on the same terms as the goods of the most favored nation; the ships of England, France, or Spain might import the produce of their colonies, and clear again with American cargoes for colonial ports, as freely as if they plied between the United States and the mother country. It was our earnest desire to secure by treaty reciprocal privileges from these foreign nations.

The failure of our negotiations with England on this subject has been noted above. By France and Spain our proposals were rejected with even greater emphasis. In view of the importance of the West India trade and the unfairness of the foreign restrictions, it is quite possible that this government would have had early recourse to retaliation had not circumstances arisen which made treaty concessions for a time unnecessary. On the outbreak of the war of the French Revolution, France, being outmatched by England at sea, threw open the ports of her colonies, whereupon their commerce passed almost entirely into the hands of American merchants. As Spain likewise was soon involved in the war, her restrictions could not be enforced, so that, although they were not repealed, they became practically a dead letter. Even England, mighty though her navy was, found it necessary on account of the war to suspend her regulations, and for a time American and British ships traded to her colonies on equal terms.<sup>1</sup> Under these circumstances we could afford to dispense with treaty concessions, and retaliatory legislation in order to acquire them would have been irritating without being immediately useful. It was, however, a precarious situation. Our merchants yielded to temptation, ventured very largely in the West India trade, and by the time we became ourselves involved in war with England they had secured for

<sup>1</sup> *American State Papers: Foreign Relations*, Vol. II, p. 408.

themselves the greater part of it. The consequence was that many of those who were not ruined by the war were ruined on the return of peace by the reassertion of the illiberal colonial policy that had formerly prevailed.

We come now to the third matter that exercised our government during this period, namely, the working of our navigation act.

The year that the act was passed our foreign trade was carried by about 124,000 tons of American shipping, the same amount of British, and some 33,000 tons of shipping that belonged to other foreign nations. After the act went into effect the decline in number of the foreign ships entering our ports was rapid and regular, while our own increased enormously, and by 1807 amounted to over 848,000 tons. It was natural that many should attribute this prosperity to our discriminating legislation. The short peace of Amiens, however, demonstrated that it was due mainly to another cause, namely, the European war, which engrossed the energies of foreign nations, diverted their ships from commercial enterprises, and enabled America to engage almost without competition in the carrying trade of the whole world. Indeed, it is probable that our act produced no benefit whatever, for it seems to have been completely neutralized by the countervailing legislation of other countries. France protested against the act as soon as she heard of it, and when her protest was ignored she imposed duties on American ships and goods that even exceeded those fixed by our law. Spain, Holland, Sweden, and Denmark followed her example, and passed navigation laws designed to favor their own ships and to injure the commerce of the United States. England waited till 1797, hoping to persuade us to repeal the act, but, failing in this, she resorted to retaliation, as the other nations had already done.<sup>1</sup>

While the war in Europe lasted these measures did not inconvenience our shipowners, but no sooner was peace declared in 1802 than their natural effect began to be felt. Madison, then

<sup>1</sup> *American State Papers: Commerce and Navigation*, Vol. I, pp. 502-4.

secretary of state, wrote to Rufus King that among the effects of the peace would be a shock to our navigation, for in time of peace the countervailing act of Great Britain would drive our ships out of the trade to the British dominions as fast as British ships could enter the competition. In support of this prediction he mentioned several instances of British ships being preferred to ours in order to evade the heavy British duties.<sup>1</sup> King, who was minister to England, investigated the matter with great care, and advised our government to accede to the British proposition that all alien duties be abolished between the two countries.<sup>2</sup> In the House of Representatives the committee on commerce and manufactures reported in January, 1803, that foreign ships were being preferred to ours in the carriage of all our bulky articles of commerce. The committee deprecated the attempt to prevent this by increasing our discriminating duties, for such a measure would merely lead to commercial warfare with other countries, and no benefit could possibly accrue to us from the system. The committee accordingly recommended the relinquishment of our discriminations in favor of all foreign nations that would agree to abolish such of their duties as were aimed against the United States.<sup>3</sup>

Strong interests, however, opposed at this time the adoption of reciprocity in navigation. It is difficult to understand the obstinate folly of the usually shrewd American merchants in upholding a measure that bid fair to blight their growing prosperity. Uphold it nevertheless they did; and numerous petitions were heard in Congress from New England and the Middle States praying against the repeal of our discriminating duties. The New York Chamber of Commerce, for example, opposed the repeal, first, forsooth, because it would diminish the revenue; second, because it would shift the carrying trade into the hands of foreigners. The latter effect was predicted on grounds that are not unfamiliar to our ears at the present day: namely, that

<sup>1</sup> *Ibid.*, *Foreign Relations*, Vol. II, p. 497.

<sup>2</sup> *Annals of Congress*, Speech of S. Smith, February 20, 1815.

<sup>3</sup> *American State Papers: Commerce and Navigation*, Vol. I, p. 504.

foreigners could build and equip ships more cheaply than we could, and, since wages and other expenses were lower abroad than with us, they could likewise navigate them more cheaply.<sup>1</sup>

While the discussion was proceeding, war once more broke out in Europe and rendered any action on the part of Congress for the time unnecessary.

The renewal of the war caused an increased demand for our exports, all our shipping was again invited into the carrying trade, and Americans became the purchasers and distributors of both European and colonial goods. In consequence, the number of our merchants swelled beyond the normal, for the brilliant prospects held out by commerce tempted all owners of capital to invest in shipping; other branches of industry were neglected, our merchant marine grew with almost incredible swiftness, and for a short time the profits of those engaged in foreign trade were simply amazing.<sup>2</sup>

This pleasing progress, however, was rudely shocked in 1806 by the depredations on our shipping that were authorized by the notorious British orders in council of that year, and the Napoleonic decrees. It was completely paralyzed by our own embargo act in 1807. Nor was recovery more than partial during the years that intervened between the repeal of this act and the outbreak of the war with England in 1812, a war that almost totally annihilated American foreign trade, and thus brought to a close this period in our commercial history.

When at last in 1815 the world once more knew peace, it was discovered that America had entered with giant stride a far-reaching economic revolution. As Cobbett exclaimed in the House of Commons, the war with England had sown the germs of a great event: nothing less than the complete and absolute independence of America from British manufactures. During the years of war, when we could no longer obtain supplies hitherto drawn from abroad, and when commercial profits had ceased with

<sup>1</sup>*American State Papers: Commerce and Navigation*, Vol. I, p. 508.

<sup>2</sup>*Ibid.*, Vol. II, p. 633.

the banishment of our ships from the sea, capital and labor were forced into a new field of employment ; and American manufactures began a development that in extent and rapidity was destined to surpass all that the world had known. It was impossible that the new conditions thus created should fail to influence our commercial policy. And, in fact, with the growth and capitalizing of manufactures, commerce became subordinate to industry ; foreign trade was hampered in order to promote the development of internal resources ; the policy of free trade and reciprocity gave way to the policy of protection.

He who is now against domestic manufactures [wrote a distinguished American after the close of the war] must be for reducing us either to dependence on a foreign nation, or to be clothed in skins and to live like wild beasts in dens and caverns. I am not one of these ; experience has taught me that manufactures are now as necessary to our independence as to our comfort ; and if those who quote me as of a different opinion will keep pace with me in purchasing nothing foreign where an equivalent of domestic fabric can be obtained without regard to difference of price, it will not be our fault if we do not have soon a supply at home equal to our demand. . . ."<sup>1</sup>

Let not the reader suppose that the man who wrote thus was some northern clothmaker or some western member of the party of "Young America." It was no other than Thomas Jefferson, the man that thirty years before had assisted to "propagate far and wide in Europe the ideas of the liberty of navigation and commerce," and had joined in the regrets that "the powers of Europe cannot agree as yet in adopting them in their full extent." Our other statesmen thought as he did, and the protective tariff act of 1815 was passed almost unanimously. America had at length wheeled into line with the powers of Europe, and for many years the principle of reciprocity in our commerce with the old world was dropped from our policy.

Trade with the colonies, however, could exercise no such influence on internal development as was attributed to trade with Europe. When, therefore, the return of peace enabled foreign nations once more to reassert the ancient colonial system, America began against that system a struggle that was long and

<sup>1</sup>JEFFERSON, *Writings* (edited by Ford), Vol. X, p. 10.



momentous. An account of that struggle, with a description of the rôle played by the United States as the champion of liberal ideas in colonial policy is too long to be given here, and is of enough importance to justify treatment in a separate chapter.

It remains to speak only of our discriminating tonnage duties. It has already been seen that grave doubts concerning the efficacy of these had long existed. With the cessation of hostilities and the recurrence of the phenomena that had so startled our legislators during the short Peace of Amiens, these doubts were resolved, and an act was passed authorizing the President to proclaim the repeal of the duties in favor of any country that would show us a like consideration. France was the only important commercial nation that did not soon take advantage of this act and grant to our vessels in the trade between America and Europe the same privileges that were enjoyed by its own. At first this reciprocity in navigation was effected by legislation except in the case of Great Britain, who preferred that it should be incorporated in the treaty of commerce in 1815. After a trial of nearly ten years, however, the government deemed it best that freedom of navigation should be given a less precarious basis. It was inserted, therefore, in a treaty with Central America in 1825; and within the next fifteen years we had no less than fourteen other treaties containing clauses by which the principle was secured. But in the meanwhile there were at work to retard the growth of our merchant marine powerful, though invisible, forces against which diplomacy was vain. As early as 1842 the effect of these forces was already apparent,<sup>1</sup> though many years were yet to pass before their nature was understood. By the time, however, that they had become dominant, and the carrying trade between America and other lands had passed almost wholly into the hands of foreigners, navigation had so diverged from commerce that little influence on the nature of our trade could be traced to the nationality of those that carried it.

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<sup>1</sup>*Report of Committee of House of Representatives*, May 28, 1842.

## INDEX NUMBERS AND THE STANDARD OF VALUE.

### II.

IN the preceding paper a slight sketch was given of the development of the index number up to and including the work of Jevons on this subject. It is not intended to prolong this sketch. The literature of the index number, after Jevons, must be studied at first-hand, although it is hardly an exaggeration to say that almost every writer since Jevons—Laspeyres, Drobisch, Lehr, Pierson, Oker, and Padan among them—has begun with Jevons's riddles and finished by condemning his standard because of its obvious conflict with the requirements of the consumption standard. Even Professor Edgeworth, who was the first to explain the merits of Jevons's work in this line, began by criticising it adversely.<sup>1</sup> Thus, the modern discussion of the index number not only began with Jevons, but in the present paper—which is devoted to an exposition of what may be called, relatively speaking, the “best standard of value”—it will be seen that the hints and suggestions embodied in Jevons's work have not yet been thoroughly exhausted.

It will be remembered by those familiar with Jevons's work on this subject that he arbitrarily altered some of the price variations which he considered excessive. The specific offense—to which he himself calls attention—consisted in toning down certain variations in the prices of cotton, hemp, flax, and tallow, which had been abnormally raised by the effect of war in the United States and Russia. Jevons's action cannot be considered as intrinsically wrong or unfair. Neither can it be unequivocally indorsed. Everything, of course, depends upon what stage in the proceedings we are to give ourselves over into the hands of the science of probability. If, as Jevons intimated was the

<sup>1</sup> See *Journal of the Statistical Society*, December, 1883.

case, we are to assume ignorance as soon as the price variations have been recorded, and are to take all variations on an equal footing, then he was guilty of breaking the prearranged rules of the game. If, on the other hand, we possess the criteria by which to adjudge one set of returns inadmissible, why not use our knowledge to extend the process of elimination until only the correct variation (or set of variations) remain? To be able to decide that one set of returns does not measure the change in the value of money, implies the possession of at least a vague notion of what constitutes the true standard of value. Why not clarify this notion and extend the field of actual knowledge instead of summoning to our aid the weapons of ignorance, powerful though they be? Just as in every physical measurement the limitations of human sensibility and the imperfection of mechanical instruments necessitate the employment of averages and the logic of probability, so in the measurement of value we will always be compelled to use these devices at some point in the proceedings. But this does not relieve us of the necessity of excluding every observation or return that is known to be erroneous.

The principle of exclusion employed by Jevons, however, can scarcely be said to furnish the criterion by which to decide whether a given commodity may be included in the measurement or not. He modified the price of cotton because his object was to ascertain the change in the value of money due to the increase in the precious metals, and the extraordinary variation in the price of cotton was confessedly due to other causes. "Our duty," he wrote, "as regards fluctuations due to changes of supply of commodities is to have nothing to do with them, but to eliminate the effects from our inquiry as soon and as completely as possible."<sup>1</sup>

Such an explanation is about as mysteriously irritating as his riddles respecting the proper mean to be employed in averaging price variations. Nevertheless, it rests upon a broad basis of truth, and finds acceptance not only in economic theory,

<sup>1</sup> *A Serious Fall*, etc., pp. 25, 26.

but in the common sense of the business man. The latter would be quite unwilling to include in the standard of value a commodity whose supply was twice as great in  $T'$  as in  $T''$ , yet this is what he often does when he accepts an ordinary index number as an expression of the change in the value of money. The classical theory of money, to refer to the science itself, incorporated the same idea in the axiom "value depends upon demand and supply." If the supply were visibly and confessedly different in the two epochs there would be good grounds for the belief that the value of the commodity had changed.

But the truth, towards which Jevons was groping, was a more important one than that incorporated in the negative statement that a commodity whose supply has changed in a large degree cannot be included in a standard of value. What we want to know is what constitutes a constancy of value. The reply to that question was given later by Jevons himself,<sup>1</sup> and in clearer and more precise terms by those writers who have developed the theory of marginal utility which he propounded.<sup>2</sup> Value is a function of quantity consumed: the "ultimate" or "best" standard of value is a restricted consumption standard, each commodity of which is consumed in the same quantity in  $T'$  as in  $T''$ . In anticipation of the objections of those readers who admit that marginal utility is a function of quantity, but deny that the same is true of value, it may be stated that reasons will be given hereafter to show that in the measurement of changes in the value of money, at least, no real distinction exists between value and utility or marginal utility.

Since the appearance of the Austrian theory of value a number of monographs have been published in which the standard of value is discussed from the standpoint of the marginal utility theory of value, and at least two utility standards have been suggested which require notice here. An examination of their

<sup>1</sup> *Theory of Political Economy*, p. 165 *et passim*.

<sup>2</sup> See MARSHALL, *Principles*, Appendix, Note XII; and IRVING FISHER, *Mathematical Investigations in the Theory of Value and Prices*, pp. 18, 87, 89.

rationale will demonstrate how perfectly natural, even commonplace, a standard of utility is.

The merit of first proposing a standard of utility adapted to the measurement of changes in the value of money must, so far as I am aware, be ascribed to Dr. Julius Lehr.<sup>2</sup> Dr. Lehr describes the fundamental theory upon which the whole group of utility measurements rest, as follows:

Um nun die Aenderungen des Geldwerthes bemessen zu Konnen, müssen auf einem bestimmten Gebiete (Land, Provinz) Alle Waaren und Leistungen, für welche Preise gezahlt worden sind, berücksichtigt werden. Hierauf sind dieselben auf ein gemeinschaftliches Masz zu bringen. Eine Handhabe hierfür bietet die jeweilige Gleichwerthigkeit. Man Kann nämlich diejenigen Mengen von Waaren und Leistungen einander gleich setzen, welche als gleich werthig zu betrachten sind. Als gleichwertig aber haben wir in unserem Falle, in welchem es sich nur um die Begriffe Preis, Durchschnittspreis, Marktpreis handelt, diejenigen Mengen anzusehen, für welche gleich viel gezahlt wird. Ist der Preis eines Hektoliter Wein=60 Mark, der eines Festmeter Buchenscheitholz=10 Mark, so sind 6 Festmeter Holz einem Hektoliter Wein gleich zu setzen. Für eine Mark erhalten wir dann  $\frac{1}{6}$  Hektoliter Wein, ebenso auch  $\frac{1}{6}$  Festmeter Holz. Diese Mengen wollen wir als je eine "Genusseinheit" bezeichnen, ein Begriff, der in Folgender Weise zur Berechnung der Veränderungen des Geldwerthes benutzt werden kann.<sup>3</sup>

Expressed in our notation Dr. Lehr would say that at any given time  $\frac{1}{p_1}c_1$  or  $\frac{1}{p_2}c_2$  . . . or  $\frac{1}{p_n}c_n$  each yields or is equal to a unit of utility; or expressing the same idea in another way: utility of  $c_1$ : utility of  $c_2$ : utility of  $c_n$ :  $p_1:p_2:p_n$ . But at this point we are met by the difficulty that the prices change. At any given time the utility of various commodities is proportional to their prices, but what is to be done when these prices change?

Dr. Lehr met this difficulty by computing a formula for the average price of a commodity. If in  $T'$ ,  $q_1'$  units of  $c_1$  are sold at  $p_1'$  per unit, while in  $T''$ ,  $q_1''$  units of  $c_1$  are sold at  $p_1''$ , per unit, then the total price of  $(q_1' + q_1'')$  units of  $C$  is  $(q_1'p_1' + q_1''p_1'')$ , and on the average of  $T'$  and  $T''$  one unit of  $c_1$  costs  $\frac{q_1'p_1' + q_1''p_1''}{q_1' + q_1''}$ . This amount, Dr. Lehr declares, is the true aver-

<sup>2</sup> *Beiträge zur Statistik der Preise* (Frankfort, 1885).

<sup>3</sup> *Ibid.*, pp. 37, 38.

age price of  $c_1$  because this price multiplied by the quantity of  $c_1$  actually bought in  $T'$  and  $T''$  will give the amount actually spent for  $c_1$  in  $T'$  and  $T''$ .<sup>1</sup> In consequence :

ut. of  $c_1$  : ut. of  $c_2$  : ut. of  $c_n$  ::

$$\frac{q_1' p_1' + q_1'' p_1''}{q_1' + q_1''} : \frac{q_2' p_2' + q_2'' p_2''}{q_2' + q_2''} : \frac{q_n' p_n' + q_n'' p_n''}{q_n' + q_n''}.$$

If in  $T'$  ( $q_1' p_1' + \dots + q_n' p_n'$ ) dollars buy ( $q_1' c_1 + \dots + q_n' c_n$ ),

and in  $T''$  ( $q_1'' p_1'' + \dots + q_n'' p_n''$ ) dollars buy ( $q_1'' c_1 + \dots + q_n'' c_n$ ),

then  $\frac{V''}{V'} = \frac{q_1'' c_1 + \dots + q_n'' c_n}{q_1' c_1 + \dots + q_n' c_n} \times \frac{q_1' p_1' + \dots + q_n' p_n'}{q_1'' p_1'' + \dots + q_n'' p_n''}.$

Substituting for  $c_1, \dots, c_n$  their respective values as determined by their average prices, we get Dr. Lehr's formula :

$$\frac{V''}{V'} = \frac{\left( \frac{q_1' p_1' + q_1'' p_1''}{q_1' + q_1''} \right) q_1'' + \dots + \left( \frac{q_n' p_n' + q_n'' p_n''}{q_n' + q_n''} \right) q_n''}{\left( \frac{q_1' p_1' + q_1'' p_1''}{q_1' + q_1''} \right) q_1' + \dots + \left( \frac{q_n' p_n' + q_n'' p_n''}{q_n' + q_n''} \right) q_n'} \times \frac{q_1' p_1' + \dots + q_n' p_n'}{q_1'' p_1'' + \dots + q_n'' p_n''}.$$

The validity of Dr. Lehr's method depends upon the average he employed. If his formula is proposed as a mere empirical approximation, it may be credited with that degree of validity appertaining to a mean between two erroneous results, whose respective errors are not known to be of an opposite kind. From a theoretical standpoint there is no superior virtue—in fact, no virtue at all—in the average he used.

According to Dr. Lehr, commodities have an importance proportional to their prices. If the price of  $c_1$  in  $T'$  is  $p_1'$ ,  $\frac{1}{p_1'}$

<sup>1</sup> *Beiträge*, p. 39. By similar reasoning we might say that the average quantity of  $c_1$  consumed in  $T'$  and  $T''$  is  $\frac{q_1' p_1' + q_1'' p_1''}{p_1' + p_1''}$ . Weighting the prices with these average quantities we get the following consumers' index-number, given as (5) on page 7 of the preceding article (JOURNAL OF POLITICAL ECONOMY, December, 1901).

$$\frac{V''}{V'} = \frac{\left( \frac{q_1' p_1' + q_1'' p_1''}{p_1' + p_1''} \right) p_1' + \dots + \left( \frac{q_n' p_n' + q_n'' p_n''}{p_n' + p_n''} \right) p_n'}{\left( \frac{q_1' p_1' + q_1'' p_1''}{p_1' + p_1''} \right) p_1'' + \dots + \left( \frac{q_n' p_n' + q_n'' p_n''}{p_n' + p_n''} \right) p_n''}.$$

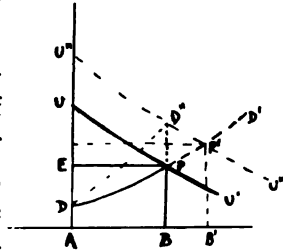
units of  $c_1$  contains one unit of utility,  $c_1$  contains  $p'$  units of utility, and its importance may be represented by  $p'$ . Similarly, the importance of  $c_1$  in  $T''$  may be represented by  $p_1''$ ; but  $p_1'$  and  $p_1''$  cannot be added, since they are incommensurable. We know that the importance of  $c_1$  in  $T'$  is  $p_1'$ , because its money value is  $p_1'$ . We also know that the importance of  $c_1$  in  $T''$  is  $p_1''$ , because its price is  $p_1''$ . But unless the value of money has remained the same  $p_1'$  and  $p_1''$  are expressed in different units. In other words, Dr. Lehr has assumed the value of money to be the same in the two epochs, in order to measure the change in the value of money by another process. Dr. Lehr seems to have been led into error by forgetting that prices represent relations or ratios between amounts of utility and not absolute amounts of utility. In  $T'$  the utility of  $c_1$  may be represented by  $p_1'$ , and in  $T''$  the utility of  $c_1$  may be represented by  $p_1''$ , but we know nothing of the ratio  $\frac{\text{ut. of } c_1 \text{ in } T'}{\text{ut. of } c_1 \text{ in } T''}$ . The "genusseinheit" of  $T'$  is not the "genusseinheit" of  $T''$ . Prices represent ratios between amounts of utility, not positive amounts of utility.

Lehr's formula is valid in two special cases, in both of which our problem might easily be solved without the unwieldy formula which he has given. It is evident that the process is correct, where  $\text{ut. of } c_1 \text{ in } T' = \text{ut. of } c_1 \text{ in } T''$ ;  $\text{ut. of } c_n \text{ in } T' = \text{ut. of } c_n \text{ in } T''$ . The formula will also be correct where  $\frac{p_1'}{p_1''} = \frac{p_2'}{p_2''} = \frac{p_n'}{p_n''}$ . When the utility of commodities remains unchanged from  $T'$  to  $T''$ , or when the variation has been the same in all prices, Lehr's formula holds good. The only instance in which either of these phenomena can occur is where the variation in prices lies wholly on the side of money. Lehr's method agrees with all its predecessors in being applicable only in that one special instance, which never occurs.

What we have called the weighted labor standard has been again proposed as a measure of marginal utility by Professor Clark.<sup>1</sup> If units of labor-time be measured along  $AB$ , and the

<sup>1</sup> *Yale Review*, November, 1892.

ordinates for the corresponding time points represent the utility and disutility resulting from the corresponding unit of labor, we get the familiar utility and disutility curves  $UU'$  and  $DD'$ , respectively, which intersect at the point  $P$ . It is evident that the value or marginal utility of the day's product —  $ABPE$  — is equal *in amount* to the marginal disutility of the day's product, both being equal to the number of units of labor time consumed when  $BP$  is taken as the unit of utility and disutility. Hence Professor Clark's conclusion that at any given time, and in respect to any isolated laborer the value of his product is most easily measured by the amount of labor time expended in producing it.



But value, Professor Clark holds, is a social phenomenon.<sup>1</sup> In modern life no one produces for his own consumption. We obtain the goods we wish to consume by producing others which we exchange for them. A produces  $c_1$ , B produces  $c_2$ , C produces  $c_3$ .  $c_1$  is distributed among A, B, and C in return for their work, or the products of their labor. The value of  $c_1$  is not measured by the time it takes A to produce it, but by the time it takes A, B, and C to produce the goods which are exchanged for it. The same argument applies to every product of the society; the value of each commodity is best measured by the social or aggregate labor time spent in acquiring it. "The standard for measuring it (value) is the sacrifice in final periods of labor, entailed on society in acquiring it."<sup>2</sup>

Professor Clark's standard is evidently the old labor standard made up of all kinds of labor in the relative proportions in which they are expended. The defects of this standard have already been considered. In the first place labor is like other commodities in respect to the fact that at different times the various kinds of labor are purchased in different amounts. In the second place, as is shown by the dotted lines in the last dia-

<sup>1</sup>See *New Englander*, Vol. IV (n. s.), p. 457.

<sup>a</sup> *Yale Review*, November, 1892, p. 272.



gram, the unit of disutility, or the length of the day's work, must, *ex hypothesi*, vary when the productivity of labor changes. Thus, as is shown in the diagram, if the utility curve changes from  $UU'$  to  $U''U'''$ , we will have a new unit of disutility (and of marginal utility),  $B'P'$ . The relation of  $BP$  to  $B'P'$  is unknown — is, in fact, the ratio we seek. However, what is more likely to happen in such a case, is a change in the relation of utility and disutility. The standard of life will change, the laborer will demand more utility per unit of disutility; he will perhaps continue to work  $AB$  hours, but will demand for the marginal unit of disutility a larger amount of utility,  $BD'$ , than before.

So obvious are these facts that I question whether Professor Clark proposes his standard as one suitable for the actual measurement of variations in value from time to time. From the present standpoint, however, he demonstrates nothing more than the proposition that at any given time a certain quantity of labor may be used as an ultimate standard of value — a proposition that has been repeated hundreds of times in the phrase "any commodity will serve as a measure of value at a given time and place."

There is, consequently, little assistance to be derived from the formulæ of Professor Clark and Dr. Lehr. The one is a weighted labor standard, the other a new variety of the compromise consumption standards noted on page 7 of the preceding article. Both have been shown to be theoretically defective, and both require statistical data which it is almost impossible to secure.

The utility standard proposed in this paper, however, requires only a few commodities, the *per capita* consumption of which is approximately the same in  $T'$  and  $T''$ , and manifestly rests upon the proposition that the value or utility of a commodity is constant as the quantity consumed is constant. An apparent objection to this proposition is found in the fact that the utility of a commodity is a function, not only of its own consumption quantity, but in some cases is also a function of the quantities of other commodities. Thus, if an individual consume  $X$  units of

tea and  $Y$  units of coffee in  $T'$ , while in  $T''$  he consumes  $X$  units of tea and  $NY$  units of coffee, it is possible that the utility of tea would not be exactly the same in  $T'$  as in  $T''$ .

In the above illustration it is evident that the error caused by regarding tea as invariable in  $T'$  and  $T''$  would be insignificant. That part of the value of tea which is dependent upon the quantity of coffee consumed is, under ordinary circumstances, a quantity of the second order which may be safely neglected. But in certain other commodities this interdependence of values cannot be neglected. Some goods are practically interchangeable. "When herring are dear the people buy sprats." They may not like sprats so well, but both satisfy hunger.

In consequence, it is not wholly true that a quantitative change in the consumption of a commodity is a certain indication of a change in its utility. On the other hand, it is more nearly true that fixity in quantity indicates fixity of utility, because when the quantity of one "complementary" or "substitutionary" good changes, the quantity of the other also changes. In all such instances a theoretical remedy lies in the exclusion of both commodities from the standard, when the quantity of either changes. The practical remedy, however, lies in the fact that the utility of a great majority of commodities is so little dependent upon the quantity of other commodities that this factor is negligible.

In another and more vital sense the value of any commodity may be said to be a function of the quantity of other goods. Excluding substitutes, complementary and competing goods it is evident that the utility of any commodity depends upon the quantity of other commodities, because of the mobility of labor and capital. If, through invention or discovery, labor and capital become more productive in one industry, while the conditions of production in other industries experience no variations of their own, labor and capital will flow from the first to the other industries. The effect of the invention or discovery will thus be spread over the whole industrial mechanism, increasing the output in all lines and decreasing the utility of every commodity.

But changes in the conditions of production are not all of one kind. Opposed to the march of invention is the law of decreasing returns. Each progressive step in any industry operates to send some of its labor into other industries, thus increasing the supply of all commodities. Every retrogressive step has an opposite effect. Two general forces are thus continually being propagated. If these forces are equal as well as opposite, they will neutralize each other, leaving those industries which have experienced no proper variations unaffected. If one of these forces be greater, producing a resultant general force, we may expect to see this resultant neutralized in those industries which have experienced an equal and opposite variation of their own. Such industries will furnish the standard commodities desired. It is not necessary that the quantity of such goods should be the same throughout the whole interval  $T' - T''$ . It is only necessary that the quantities be the same in  $T'$  as in  $T''$ . Neither is it essential that the standard should always consist of the same commodities. In comparing  $T'$  and  $T''$  we may use the commodities  $c_1, c_3, c_5$ ; while in comparing  $T''$  and  $T'''$ , the commodities  $c_2, c_1, c_4$  may be used.

Looking now to the consumption of the individual, we find a similar interdependence of consumption quantities. When the price of the commodity  $c_1$  rises, the quantity consumed immediately falls. But this will not, in most cases, be the only effect; the quantities of other commodities will also fall. If  $c_1$  be some "indispensable" commodity—a medicinal article, for instance—the fall in the quantity of  $c_1$  may be small, while the quantities of other goods—*e. g.*, certain luxuries—may decrease in a greater degree.  $c_1$  having become more valuable, other goods must become more valuable. In accordance with a principle which may be called the *mobility of consumption*, the utility of a good is a function of the quantities of all other goods. As in the preceding case, variations are not all of one kind between  $T'$  and  $T''$ . Positive price variations set in action general forces which are neutralized in certain lines of consumption by the general forces propagated by negative price variations.

In such lines of consumption we find the standard commodities desired. It is interesting to note that the mobility of consumption is practically instantaneous in its operation. The flow of labor and capital from one industry to another is obstructed in many ways. But no similar obstructions are found in expending money for consumption.

But production and consumption are, of course, interdependent. Whether or not a good is consumed in the same quantities in  $T'$  and  $T''$  depends upon the interaction of two forces: the change in the price of the good, and the change in the income of society. Prices may rise uniformly. In this case, if incomes rise in the same ratio, commodities may be consumed in the same quantities in  $T'$  and  $T''$ . What actually happens, however, is that some prices rise and others fall. Whether the standard commodities will come from the group whose prices rise or the group whose prices fall depends upon the movement of income between  $T'$  and  $T''$ . If incomes have risen in  $T''$  the society will be enabled to consume the usual quantities of the goods whose prices have increased. If incomes have fallen, only those goods whose prices have fallen will continue to be consumed in the old quantities. The forces which influence the value of money are various, but their resultant is measured in the prices of those goods which are consumed in the same quantities.

The proposed standard, then, is, without aiming to be so, a logical compromise between the labor and consumption standards. Böhm-Bawerk has mentioned this attribute as a prime requisite of the ultimate standard of value, and its importance is manifest.<sup>1</sup> The consumption and labor standards, and their respective defendants, are not wholly wrong; the standards are based upon important half-truths, and the defendant of each feels in his cause a measure of justice. The trouble is that the defendant of the consumption standard never recognizes the semi-justice of his opponent's position, and *vice versa*. Men like David A. Wells assume the validity of the labor standard,

<sup>1</sup> *Annals of the American Academy* Vol. V., Pt. 1, p. 208.

construct strong and convincing arguments from this standpoint, and then wonder why they make no impression upon the vast number of people who have no idea of, or at least no sympathy with, any other than the consumption or tabular standard.<sup>1</sup> The reason lies in the simple fact that the value of money depends upon both the level of prices and the size of the income. Whether or not money was more valuable in 1896 than in 1873 depends upon whether the effect of the fall in prices was great enough to offset the effect of the increase in wages.

The standard of value proposed here rests upon the marginal utility theory of value, and, although described simply as a standard of value, is in its first interpretation a standard of utility. The nature of the unit or standard of utility has been the subject of considerable speculation.<sup>2</sup> Some writers seem to have assumed that it would necessarily be a unit of sensation. Others have raised unfortunate distinctions between standards of marginal and total or absolute utility. Almost all of them have assumed that the standard of utility was hopelessly impracticable. An examination of the more important of these objections will serve to show that the standard of utility is not only not impracticable, but that it really constitutes the only practicable standard by which changes in the value of money can be measured.

In the discussion of the proper standard of deferred payments, carried on several years ago between Professor Ross and Dr. Merriam,<sup>3</sup> the impression was created that, since value is measured by marginal utility the correct standard of value would be a standard of marginal utility as distinguished from a standard of total or absolute utility.

This distinction arises from a misconception of the nature of utility which is mischievous, not only because of its prevalence,

<sup>1</sup> See WELLS, *Recent Economic Changes*, chap. v.

<sup>2</sup> ROSS, *Annals of the American Academy*, November 1892, and November, 1893; MERRIAM, *ibid.*, January, 1893; FETTER, *ibid.*, May, 1895; MENDER, *Revue d'Economie Politique*, February, 1892.

<sup>3</sup> *Annals of the American Academy*, November, 1892; January, 1893; November, 1893.

but because of the fact that a majority of persons, if called upon to choose between a standard of total utility and one of marginal utility, would without hesitation prefer the former. It is, therefore, important to show that the differentiation of marginal from total utility in the standard of value is impossible, and that, in consequence, the standard proposed here is not open to the objections formulated by Professor Ross and Dr. Fetter<sup>1</sup> against the theoretical standard defended by Mr. Merriam.

In order to gain any definite conception of a value constant in different epochs, it is necessary to make value equivalent to that property of goods which has been called "utility," "desiredness," "ophelimity," "real value," etc., and for the purpose of measuring variations in value it is necessary to postulate that the amounts of this property contained by various goods are proportional to their respective prices. This fact is most frequently expressed in the simple statement that at any given time marginal utilities are proportional to prices. It is usually deduced as follows: The last dollar spent for every commodity must yield the same amount of utility, or I would buy more of some commodities and less of others. Thus, if the last dollar's worth of bread yields me less utility than the last dollar's worth of meat, I will buy more meat and less bread until the equilibrium be restored. Hence, marginal utility of  $\frac{1}{p_1}$  units of  $c_1$  = marginal utility of  $\frac{1}{p_2}$  units of  $c_2$ . This expression is then expanded so as to read:

$$\frac{\text{mar. ut. of 1 unit of } c_1}{\text{mar. ut. of 1 unit of } c_2} = \frac{p_2}{p_1}.$$

But this expression is, by admission, only approximately true. By the law of variable utility the utility of one unit of  $c_1$  is not  $p_1$  times the utility of  $\frac{1}{p_1}c_1$ . Consequently, writers have been careful to say that this law holds only when  $c_1$  and  $c_2$  are very small, or, in other words, that the law is strictly true only for differential increments,  $dc_1$ ,  $dc_2$ , etc.

<sup>1</sup> *Annals*, November, 1893, and May, 1895.

The law which states that marginal utilities are proportional to prices is, according to this analysis, evidently open to three criticisms which have been frequently urged against it. It is asserted: (1) that it postulates the infinite divisibility of commodities; (2) that it holds only for infinitesimal marginal increments; (3) that a fixed amount of marginal utility is an empty philosophical vagary, impractical and unsuited (even if practical) to act as a standard of value.

These criticisms have originated in a defective or, at least, an inadequate analysis of consumption. In order to test their validity it is desirable to examine more closely into the nature of the utility with which we are concerned.

In speaking of utility it is necessary to limit the connotation of the word by reference to a definite commodity, and most important of all, a definite time epoch. We must think of the utility of the commodity  $c_1$  in the epoch  $T$ . The omission of the time element in discussions of utility is largely responsible for the objections noted.

In order to look more closely into the process of consumption, a simple illustration may be employed. Suppose an individual to heat his house with a ton of coals per month. The commodity unit here will be the ton of coals; the time unit the month; and the utility unit the total utility afforded by the ton of coals. We may further assume that the ton is divided into a number of uniform subdivisions, say bushels. The following inferences may be drawn:

1. That irrespective of the actual amounts of utility afforded by the several bushels the individual will regard the utility afforded by each bushel as the same. Either at the beginning or at the end of the month each bushel will appear equally important, though it may be noted that we are here wholly beyond the domain of exchange value.

2. That so far as there is any law discernible the actual process of consumption tends to follow the process of thought. Notwithstanding the gradual satiability of want, equal subdivisions of the unit of commodity tend to yield uniform amounts

of utility. *Ceteris paribus*, the individual will distribute the time and divide the commodity so that equal portions of the commodity will yield like amounts of utility, because in this way the maximum amount of satisfaction will be obtained. Shorten the time unit to the dinner hour, include only one class of commodities—food—think of utility as the mere power of satisfying hunger, and we obtain the concept of utility that has fathered the above criticisms and inveigled economics into the hopeless search for a unit of sensation. A definite quantity of a commodity designed to be consumed in a definite period of time will be consumed in a way such that equal subdivisions of the commodity will tend to yield uniform amounts of utility.

Utilities, then, are proportional to prices, and the relation holds good for total utility and actual commodities as well as for marginal utility and infinitesimal increments. The individual regulates his purchases with reference to a general level of possible utility, which is dependent upon the amount of his income. Knowing his total income he lays out fixed amounts for the different goods. He knows that he can purchase so much  $c_1$ , so much  $c_2$ , so much  $c_3$ . The more he buys of  $c_1$ , the less satisfaction per unit will be received, and the same is true of  $c_2$ ,  $c_3$ . But each subdivision of  $c_1$  does not yield less satisfaction than every preceding subdivision. Each succeeding increment of  $c_1$  may bring down the amount of utility which would be rendered by preceding subdivisions, if the last increment were not consumed. But the latter statement is by no means equivalent to the former statement. Taking the annual consumption of a commodity as the unit, it is clear that we cannot treat the first increment or subdivision consumed in January as more useful, more desirable, or more valuable than the last increment consumed in December.

It follows also that the differentiation of a standard of marginal utility from the standard of total utility is impossible. We imagine a case in which a man has only one loaf of bread a week. We deduce from this the correct conclusion that in this event the utility of the loaf would be practically infinite. We



then imagine the man to have ten loaves per week and from the second case deduce the incorrect result that the utility of the first loaf is still infinitely greater than the utility of the tenth loaf. Such an inference is entirely unwarranted. It assigns to the first loaf of ten the utility which it would possess if the individual had only one loaf. The result in our problem is to furnish us a standard of potential utility with which we have no concern. There is no difference between a standard of marginal and a standard of total utility. The distinction is between utility and potential utility.

As there is no useful distinction between marginal and total utility, there would seem to be no distinction between utility and value, unless the basis of differentiation be those moral or non-economic criteria according to which we adjudge that a quart of whisky possesses less utility than a loaf of bread, or a bushel of coals more utility than a diamond. With such distinctions the theory of value has no concern. Accordingly, I see no reason to employ any other term than the simple word value. I dispense with the word utility the more willingly because many prominent writers (with a verbal justification, I must admit) deny that two physically dissimilar goods can be said to possess like amounts of utility. The utility afforded by a dollar's worth of candy and that afforded by a dollar's worth of quinine, they say, are incommensurable. Terms are not material. If the utility afforded by the two goods is not the same, the economist has nothing to do with utility. His subject-matter is that property which two commodities may be affirmed to possess in like amounts when the individual desires neither to the exclusion of the other.<sup>1</sup> If one finds his pathway blocked by a post, it is useless to argue; the sensible thing is to avoid the post.

Before closing it is necessary to say a few words of the practical application and advantages of the proposed standard.

At the outset it must, of course, be admitted that the absolute requirements of this standard cannot be satisfied any more

<sup>1</sup> See FISHER, *Mathematical Investigations*, pp. 3-24; cf. SHERWOOD, "The Philosophical Basis of Economics," *Publications of the American Academy*, No. 209; and MARSHALL, *Fortnightly Review*, April, 1876, pp. 596, 597.

than the absolute requirements of any physical measurement can be satisfied. The reasons for this are obvious. While we can reasonably hope for the necessary statistics of consumption, as soon as the government becomes awake to the importance of such data, we do not at present possess them. On the other hand, if such statistics were available, they would seldom or never show a commodity whose per capita consumption was exactly the same in  $T'$  and  $T''$ . We should be forced to include commodities whose quantities had varied a little, say 5 per cent., in the interval; and this would introduce an element of error which could only be removed by the use of a mean. At some point in the investigation we must "trust to luck," average the returns in such a way as to make the errors mutually destructive, and test the result by the criteria of the science of probability.

But at just what point we shall begin to trust to luck is a question of the greatest practical importance. If we attempt to ascertain the mean human stature of a nation, to borrow an illustration from Dr. Venn, it is very evident that we must not only measure an immense number of people,<sup>1</sup> but we must select these people judiciously. It will not do to take most of the measurements in the cities and a very few from the rural districts, or all from the East and none from the West, because this will influence the mean type which we are trying to elicit. Moreover, it is plain that this mean type is a very elusive affair. At bottom, it seems largely a creature of definition. We can modify it by confining our investigation to a limited area. It measures no known force or set of forces. It is useful chiefly for purposes of comparison; it is valuable, for instance, to know that on the average Englishmen are so many inches taller than Frenchmen.

On the other hand, to borrow another illustration from Dr. Venn,<sup>2</sup> almost verbatim, suppose that a man had been firing at a small mark on a wall, that the mark had subsequently been

<sup>1</sup> VENN, *Logic of Chance*, chap. 2: "It need hardly be insisted upon that the interest and significance of such investigations as these are almost entirely dependent upon the statistics being very extensive," p. 24.

<sup>2</sup> *Ibid.*, chap. 19, § 2.

removed, and we were asked to guess the position of the mark from the arrangement of the shot-marks. It is evident here that, unless some regular force, such as the wind, had exerted an unvarying influence upon the shots, we should be able to locate the mark with all necessary precision from a comparatively small number of shot-marks. The fact that we had been aiming at a fixed object would simplify the matter greatly. And until the position of the wafer had been estimated by the appropriate average, each shot would be an equally valid indication of the position desired.

The relation between the two problems just illustrated is very similar to the relation between the average of all price variations obtainable and the average of those commodities whose consumption quantities have not varied. The former requires an immense number of prices, which must be representative as well as independent, and when the variations of these prices have been averaged the meaning and importance of the result are uncertain. As in the first illustration, its chief utility is probably comparative; that is, it would possibly furnish a valid method of *comparing* the general movement of prices in two intervals of time, or in two countries for the same interval of time. This is a very different thing, however, from a *measurement* of change or difference in the value of money between two epochs or places.

The index number suggested here, however, partakes of the objectivity of a physical measurement, in which each of the returns is a slightly inaccurate measurement of the same thing. If the theory be correct upon which this index number is based, our result will be more exact the more exclusively we confine ourselves to those commodities which are consumed in exactly the same quantities in  $T'$  and  $T''$ . With a standard approaching this condition within, say 5 per cent., as suggested, the margin of probable errors would be small, although it might happen that one or two of the variations diverged greatly from the rest, and for this as well as other important reasons it would be advisable to use the median. But, because of the "objectivity" of the measurement and the consequent restriction of the errors,

there would not be the same necessity for a large number of prices that there is in the ordinary index number, and the accuracy of the result would not be so largely dependent upon the selection of a representative list of independent price variations.

In the ordinary consumption index number, the importance of selecting a truly representative list of independent variations is as great as the task is difficult. In the actual computation of index numbers this difficulty expresses itself in the concrete question: Ought we to take a few very important commodities whose price variations are wholly distinct, or should we include as many prices as possible, placing more emphasis upon quantity than upon importance and independence?<sup>1</sup> "Common sense" furnishes no guide here, as it is extremely desirable both that the commodities should be important and the price variations numerous, and, moreover, "common sense" is a notoriously poor guide in delicate quantitative questions. The importance of the problem is shown by the fact that if we throw the index numbers of Falkner, Soetbeer, and Sauerbeck upon the same basis, the first (based upon 223 articles) will in practically every year be found higher than the second (114 articles), and the second higher than the third (45 articles). While the grave discrepancies between these index numbers is probably due in a large degree to actual differences in the variation of money in the United States, Germany, and England, they are probably due in a greater degree to the number and character of the commodities covered by the several measurements.<sup>2</sup>

In the index number proposed here, however, this question would not arise, as the importance of the commodity in consumption would have little or no weight. The change in the price of pepper is just as good an indication of the variation in the value of money as the change in the price of wheat. Neither would it be fatal to include a disproportionate number of prices from one general field of industry. If, for instance, five equally

<sup>1</sup> See the interesting debate upon this question between Mr. Sauerbeck and Professor Pierson, in the fifth volume of the *Economic Journal*.

<sup>2</sup> See ALDRICH, *Report upon Wholesale Prices, Wages, and Transportation*, Part I, p. 256 *et passim*.

expert surveyors measure the length of a river with the same instruments, and one of the surveyors make twice as many measurements as any other, no grave error could be introduced by taking an average of the returns without reference to the particular individual who made them. Moreover, no weights would be required and our result would have a definite meaning in itself; it would be the best measurement we could make of the change in the value of money, not an ambiguous "average variation of prices."

In conclusion it may be added that the theory upon which this standard is based furnishes a test of the direction of the variation in the value of money, which may prove not without interest to those impartial investigators who have hesitated between the claims of the labor and consumption standards and who, in consequence, have been uncertain whether the value of money rose or fell between 1860 and 1891, to take the standard and final years of the Aldrich investigation, for example. This test is found in the consumption of those commodities whose prices were the same in 1860 and 1891. If a dollar purchased  $c_1, c_2, c_n$ , etc., in both 1860 and 1891, then the value of each of these commodities must have varied exactly as the value of money varied between 1860 and 1891, and the direction of this variation will be shown by the change in the consumption of these articles. If the consumption of these articles increased, the value of money fell in the interval; if the consumption decreased, the value of money rose. *A fortiori*, if the consumption of those articles whose prices have risen increased, the value of money must have fallen.

Table II, Part I, of the Aldrich report on *Wholesale Prices, Wages, and Transportation* shows that the prices of the following articles were the same in 1860 and 1891: potatoes, milk, soda crackers, broadcloths, coal (anthracite, pea), chestnut lumber in the log, wooden tubs, Ontario starch. The following articles were from 2 to 10 per cent. higher in 1891 than in 1860: lamb, beef (loins), beef (ribs), rye flour, Sumatra pepper (whole), eggs, anthracite coal (egg and stove), sugar of lead (white),

linseed oil. To base a verdict concerning the change in the value of money upon these data, without accurate statistics of consumption, is of course out of the question, but in connection with the more extensive price lists from which they are taken and the general belief that the consumption of meat and coal, for instance, is increasing, they furnish some reason for the belief that in the last half century, to use round figures, the value of money has fallen rather than increased, or, in other words, that the increase in wages has more than offset the fall in prices.

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## MUNICIPAL GAS AND ELECTRIC PLANTS IN MASSACHUSETTS.

### I.

MUNICIPAL electric plants in Massachusetts had their beginning at Danvers in 1888. In that year the town appropriated money for and built an electric generating station with distribution lines and arc street lamps. At first no attempt was made to supply private consumers, but the town petitioned the legislature for authority to engage in such supply, and a bill to that effect was introduced in the session of 1888-89. The petition to the legislature for this authority seems to have been based on the almost unanimous desire of the citizens of the town, as the town vote in favor of it was 194 to 7. Notwithstanding this, the bill introduced to meet the wishes of the town was defeated by forces that can readily be imagined, in view of the fact that the general supply of both gas and electricity throughout the state was at that time in the hands of private corporations and individuals.

In 1889, after the request of Danvers had been denied, the Danvers Gas Light Company sought and obtained from the gas and electric light commissioners authority to engage in electrical supply, but has never done so, probably through fear of competition by the town plant.

The course taken by Danvers no doubt served to strengthen the demand for public ownership of gas and electric plants, which resulted in the so-called municipal act of 1891, or chapter 370 of that year. This act was evidently a compromise, since, while it confers on cities and towns the authority to engage in gas and electrical supply for both public and private purposes under certain restrictions, it imposes on cities and towns that accept the act the obligation to purchase existing plants where the owners desire to sell.

In the same year with this general law a special act was passed, chapter 378 of 1891, legalizing the doings of Danvers as to its municipal plant and giving it authority to supply electric light to its citizens. Since the passage of the general municipal act of 1891, and up to the close of the calendar year 1900, sixty-one cities and towns of the state

have taken some official action looking to the establishment of gas or electric plants. The net result of all this activity up to the end of the year just named has been the purchase or erection of eighteen municipal plants. Some explanation of this apparent lack of real desire for municipal ownership may be found in the fact that nearly all of the cities and towns mentioned, like the great majority of those having more than 1,500 population, in the state, were at the time of their action provided with private gas or electric plants which it might become necessary to purchase. Following are given the names, populations, years of starting, and kind of supply for cities and towns having municipal plants:

MUNICIPAL GAS AND ELECTRIC PLANTS IN MASSACHUSETTS.

Name.	Population.	Year started.	Supply.
Belmont .....	3,929	1898	Electrical
Braintree .....	5,981	1892	"
Chicopee .....	19,167	1896	"
Concord .....	5,652	1900	"
Danvers .....	8,542	1889	"
Hingham .....	5,059	1894	"
Hudson .....	5,454	1897	"
Hull .....	1,703	1894	"
Marblehead .....	7,582	1895	"
Middleboro .....	6,885	1893	" and gas
Needham .....	4,016	1893	"
North Attleboro .....	7,253	1894	"
Peabody .....	11,523	1892	"
Reading .....	4,969	1895	"
Taunton .....	31,036	1897	"
Wakefield .....	9,290	1894	" and gas
Wellesley .....	5,072	1892	"
Westfield .....	12,310	1899	" and gas

Belmont, Hingham, and Wellesley have only distribution systems, and buy energy from private generating plants in other towns. Needham also lacks a generating station, and obtains electrical energy from a private plant located within the town. The other fourteen municipal plants include generating as well as distributing equipments. Needham and Wellesley devote their plants almost exclusively to street lighting, but the other sixteen places supply both public and private lamps. Gas as well as electric light is supplied from the municipal plants in Middleboro, Wakefield, and Westfield. The list includes sixteen towns and two cities. Population stood at 31,036 for Taunton,



the largest city, in 1900, and at 1,703 for Hull, the smallest town. The total population of the eighteen cities and towns having municipal gas and electric plants was 155,423 in the year just named. New plants have been established with fair regularity as to time since the passage of the municipal act in 1891. Three plants began operation in 1892, two in 1893, four in 1894, two in 1895, one in 1896, two in 1897, one in 1898, one in 1899, and one in 1900. The somewhat slower rate at which cities and towns have established new plants since 1895 is probably due to the fact that the places where existing private systems would not have to be purchased have only very small populations. Of the six municipal plants started since 1895 those at Chicopee, Hudson, Taunton, Belmont, and Westfield were bought as the results of suits brought by private corporations, and the plant at Concord has alone been built by the town, without such a purchase. Twelve gas or electric plants were started by cities and towns prior to 1896. Middleboro, Hull, Wakefield, and Hingham bought existing systems, but Braintree, Peabody, Wellesley, Needham, North Attleboro, Reading, Marblehead, and Danvers built entirely new plants. Up to and including the year of 1895, 66 per cent. of the municipal plants were built by the towns, but since that date 80 per cent. of those added have been acquired through compulsory purchase.

No private generating station for general electrical supply exists in any town or city where there is a like municipal plant. Needham with only an electrical distribution system contains a generating station under private ownership, but no other place with a municipal plant has such a station. This generating station in Needham supplies private consumers as well as the town plant. The town electric plant in Wellesley draws its energy from a private generating station in Natick, and private consumers are supplied from the same source. A part of Chicopee, probably that beyond the service area of the municipal plant, has electrical supply for private consumers from a generating station in an adjoining town. Gas companies do a general business in Belmont, Chicopee, Danvers, Marblehead, North Attleboro, Peabody, Taunton, and Wellesley. In these eight places the municipal electric plants are thus subject to the competition of gas systems under private ownership. The net price of gas per 1,000 cubic feet is \$1.80 in Belmont; \$1.75 in Chicopee; \$2.125 in Danvers; \$2.125 in Marblehead; \$1.45 in North Attleboro; \$1.30 in Peabody; \$1.30 in Taunton; and in Wellesley \$1.25, to small consumers for illuminating

purposes. With the original municipal plant at Danvers there were four in 1892, six in 1893, ten in 1894, twelve in 1895, and the number increased in 1896 to thirteen, in 1897 to fifteen, in 1898 to sixteen, in 1899 to seventeen, and in 1900 to eighteen.

The municipal electric plants were originally devoted mostly to street lighting, and some have continued in this line exclusively. Some idea of the growth of these plants may be got from the numbers of street lamps supplied by them in each year, as given by the accompanying table. The numbers of lamps stated are for fiscal years ending on June 30 in each case. As the legal right of Danvers to establish a plant was questioned, and the entire subject of municipal gas and electric plants was before the legislature, no such plants were established between 1889 and 1892.

NUMBER OF ELECTRIC STREET LAMPS IN OPERATION BY THE MUNICIPAL PLANTS OF MASSACHUSETTS AT THE END OF EACH FISCAL YEAR.

Year ending, June 30.	Arc street lamps.	Incandescent street lamps.	Year ending, June 30.	Arc street lamps.	Incandescent street lamps.
1889.....	73	.....	1896.....	996	2,436
1892.....	82	.....	1897.....	1,012	2,331
1893.....	307	452	1898.....	1,199	2,830
1894.....	416	1,086	1899.....	1,343	2,938
1895.....	734	2,535	1900.....	1,389	3,324

Since June 30, 1893, the end of the first fiscal year for plants established under the municipal act of 1891, the number of arc street lamps has increased from 307 to 1,389 on June 30, 1900, or 352 per cent. This for the seven years is at the average rate of 50 per cent. yearly over the number for 1892. During the same period the number of incandescent street lamps has increased from 452 to 3,324, or 635 per cent., an average of 90 per cent. yearly over the initial numbers.

Investments in municipal plants have gone up even faster than the numbers of street lamps operated by them. The rapid increase of these investments has been largely due to extensions of plants for purposes of commercial service. To determine the fiscal year in which investments, operating expenses, and earnings of municipal plants should first appear, it is necessary to note the month as well as the year when each plant began operation or came under town management. Each fiscal year ends on June 30 of the calendar year by which it is designated. Investments are given as of June 30 in each year,

and earnings and expenses are for the twelve months ending at that date. The investment for the fiscal year 1892 thus includes only that at Danvers, because the three new plants of the calendar year 1892 were all started in operation during its second half. In the same way, the investment for 1893 includes only plants started in 1889 and 1892.

#### DATES OF STARTING MUNICIPAL PLANTS.

Danvers, January 2, 1889.	Wakefield, August 7, 1894.
Braintree, October 15, 1892.	Marblehead, January 1, 1895.
Wellesley, December 13, 1892.	Reading, first half 1895.
Peabody, September 27, 1892.	Chicopee, May 28, 1896.
Needham, November 6, 1893.	Hudson, January 15, 1897.
Middleboro, December 15, 1893.	Taunton, July 1, 1897.
Hingham, April 1, 1894.	Belmont, May 3, 1898.
Hull, October 15, 1894.	Wakefield, June 1, 1899.
North Attleboro, February 22, 1894.	Concord, February 1, 1900.

The money earnings of municipal plants are derived from commercial service, and none of these plants supplied private consumers prior to the fiscal year of 1894. On June 30 of that year Braintree, Peabody, Middleboro, and Hingham were supplying private as well as public lamps. Before the middle of 1895, Hull, Marblehead, North Attleboro, and Wakefield were added to the towns engaged in commercial service from gas or electric plants. During the fiscal year of 1896 Reading began to supply electric light to private consumers. In the year ending June 30, 1897, Chicopee, Danvers, and Hudson began commercial service. Belmont and Taunton undertook commercial business before the middle of 1898.

Commercial as well as public lighting from the municipal plant at Westfield dates from June 1, 1899, the day on which its transfer to the town was completed. Concord began to supply private consumers shortly after its plant was started on February 1, 1900. The original investment of \$15,000 at the Danvers plant in 1889 had increased to \$16,555.68 by June 30, 1893, and the sums expended in the three new plants brought the total investment for all four up to \$129,700.39, on that date. Just seven years later, the entire investment in the eighteen municipal gas and electric plants was \$1,468,807. Compared with the sum expended by 1893, this last figure shows an addition to investments of 1032 per cent.

TOTAL INVESTMENTS, EXPENSES, AND MONEY EARNINGS OF ALL  
MUNICIPAL GAS AND ELECTRIC PLANTS IN MASSACHUSETTS.

Year ending June 30.	Investments.	Expenses.	Money earnings.
1889.....	\$15,000	.....	.....
1892.....	15,694	.....	.....
1893.....	129,700	\$11,095.85	.....
1894.....	249,223	29,845.08	\$8,211.68
1895.....	660,029	86,389.12	45,947.45
1896.....	786,792	108,893.32	55,098.46
1897.....	933,776	134,413.20	70,291.86
1898.....	1,144,267	161,621.91	108,972.11
1899.....	1,335,585	177,437.61	117,264.32
1900.....	1,468,807	207,441.29	165,866.76

The figures given for expenses in the fiscal year of 1893 do not include those of the Danvers plant, because this plant is not reported as of June 30 until 1894. Investment figures for Danvers in 1893, as well as those of previous years, are not given for June 30, but apparently for February 1. This fact is not very material for present purposes, because additions to the Danvers plant were made very slowly during these years. From 1893 to 1900 the average addition to the total investments in municipal gas and electric plants during each fiscal year was 147 per cent. of their sum at the beginning of the period. This rate of increase has been nearly maintained to date, as the average annual addition to these municipal investments during the last two years has been 125 per cent. of the amount in 1893. That this expansion of municipal plants has been largely due to the increase of their commercial service is shown by the course of expenses and money earnings. During the fiscal year of 1894, the first in which municipal plants supplied private consumers, the money earnings from this commercial service were only 27 per cent. of the operating expenses of the plants. For the fiscal year of 1900 the money earnings of all municipal plants were 80 per cent. of their operating expenses.

The law limiting the indebtedness of cities and towns in general does not apply where expenditures are to be made for gas and electric plants. In the municipal act of 1891 the general law is replaced by the provision that the par value of bonds issued for the purchase of such a plant, and outstanding, shall not exceed 5 per cent. in the case of a town, or  $2\frac{1}{2}$  per cent. in a city of the total value of estates therein, as fixed by the last preceding state valuation.

RATIO OF INVESTMENTS IN MUNICIPAL GAS AND ELECTRIC PLANTS TO  
PROPERTY VALUATIONS IN THE CITIES AND TOWNS WHERE THE  
PLANTS ARE LOCATED.

City or town	Per cent.	City or town	Per cent.
Belmont .....	0.38	Middleboro .....	3.26
Braintree .....	2.10	Needham .....	0.44
Chicopee .....	1.09	North Attleboro .....	1.97
Concord .....	0.91	Peabody .....	0.96
Danvers .....	0.91	Reading .....	1.70
Hingham .....	0.62	Taunton .....	0.73
Hudson .....	1.59	Wakefield .....	2.45
Hull .....	3.05	Wellesley .....	0.19
Marblehead .....	1.39	Westfield .....	1.84

Taunton and Chicopee are the only cities in this list. In the latter the investment in the municipal electric plant is less than one-half, and in the former less than one-third, of the limit set by law for city indebtedness on account of such plants. Among the towns only two, Hull and Middleboro, have investment in gas or electric plants that represent more than one-half of the debt limit. For the eighteen cities and towns the total investments in gas and electric plants is only 1.26 per cent. of the property valuations. But the total investment is necessarily greater than the indebtedness on account of these plants, because a part of the bonds issued for their purchase have been paid.

TAX PER \$1,000 OF VALUATION IN TOWNS THAT HAD MUNICIPAL  
PLANTS IN 1895.

Towns.	Tax in 1895.	Tax, 1900.	Towns.	Tax in 1895.	Tax, 1900.
Braintree .....	\$17.60	\$19.60	North Attleboro...	\$24.00	\$22.50
Danvers .....	17.00	14.40	Peabody .....	17.60	18.40
Hingham .....	16.00	16.00	Reading .....	15.50	17.50
Marblehead .....	17.90	15.60	Wakefield .....	18.50	17.20
Middleboro .....	16.66½	20.70	Wellesley .....	11.00	11.00
Needham .....	14.60	14.00			

Of the twelve towns with municipal gas or electric plants in 1895, two had the same tax rate in that year as in 1900. Five of these towns show an increase and five show a decrease of the tax rate between the years just named. It seems that no definite conclusion can be drawn from these tax rates, either for or against town ownership of gas and electric plants. Indeed, the operations of these plants seem to be on

too small a scale to materially change the tax rates. Thus Middleboro shows an increase of taxes in 1900 over 1895 of more than \$4 per thousand, and the valuation of estates in 1900 was \$3,321,673. The increase in tax rate of \$4 per thousand, when applied to this valuation, yields \$13,286.69, but the excess of expenses over money earnings of the plant at Middleboro in 1900 was only \$609.59. On the other hand, it would require minute investigation to determine whether the decreased rates were due to the operation of municipal plants.

One of the most striking features in connection with municipal electric plants in Massachusetts is the absence of any serious competition with them by similar private plants. This condition seems to be due to a fear on the part of private corporations to engage in such competition. Ten of the cities or towns that have established electric plants, contained previously existing private systems of the same sort. In each of these ten places the private plant has either been purchased by the city or town, or else the owners of the private plant have endeavored to force such a purchase. In nine places the city or town has purchased the existing electric system, but in one town, North Attleboro, the private corporation filed its schedule, as required by law to enforce the purchase of its plant, but never carried its case to trial, and the plant was not purchased. This private plant was subsequently removed from the town. The fear of municipal competition or the hope to obtain high prices is the only apparent motive for these sales of private systems to the cities or towns. The private corporations in these ten places might have retained their plants and competed with the town plants. Under the municipal act of 1891, cities and towns have no power to compel the sale of existing gas or electric plants, though the owners of such plants can compel the cities or towns in which they are located to purchase. After cities or towns decide by the required vote to establish gas or electric plants, they are not permitted by the municipal act to withdraw any rights in their streets or ways previously granted to similar plants.

Private corporations have no reason to fear competition by town or city plants on any other than a paying basis. Under the law, the prices charged for gas or electrical energy by the cities and towns must include, in addition to operating expenses, interest on the entire investment at the rate paid on municipal bonds, depreciation at 5 per cent. yearly, on the cost of the plants, and sufficient depreciation charges to pay the bonds, issued for the purchase of the plant,

when they fall due. The commissioners may permit a municipal plant to sell gas or electric light at less than a price computed on the basis just named, but it is against their policy to do so. In only one instance, that of Hudson in 1898, have the commissioners consented to a price below that required by statute. In this case the low price was authorized for only five months, when the plant had operated a few months, and on a state of facts that seemed to indicate a lower cost per unit of output in the near future. The small private electric station at Needham, where the municipal plant does no commercial lighting, has been operated about two years by a partnership that is also engaged in another business. At Danvers, the gas company, though authorized by the commissioners to supply electric light, has never exercised the privilege.

## II.

### FINANCES

Under chapter 370 of the acts of 1891, and chapters 356 and 480 of the acts of 1896, the board of gas and electric light commissioners of Massachusetts have ample powers to prescribe the way in which all accounts of municipal gas and electric plants shall be kept. In addition to the annual sworn reports of these accounts, which must, according to law, be made to the commissioners, they have authority to demand additional reports in any detail whenever they so desire.

The commissioners have exercised their powers through an elaborate set of rules and forms regulating all the accounts of municipal gas and electric plants.

The annual reports of the commissioners contain the substance of the reports from all of the cities and towns owning gas and electric systems, and constitute the most important and accurate body of data relative to such municipal plants that has ever been compiled in the United States. From these reports, which are the main source of information for the present paper, it is possible to determine accurately the investments, earnings, expenses, assets and costs of service in all the municipal gas and electric plants of the state.

It is well known that the financial showing made by corporate and municipal enterprises depends to a very large extent on the ways in which such items as investment, depreciation, operating expenses and construction accounts are treated. The object here is to point out

just how these and related items are determined under the system enforced by the commissioners for the municipal plants.

Money to pay for the purchase, construction or extension of municipal plants may be obtained by the sale of bonds not to run more than thirty years. Short time loans, payable from taxes from year to year, may be made to cover operating expenses. All expenses incurred in connection with municipal plants are appropriated and paid from the city and town treasuries. All money earnings of these plants are paid into the treasuries of the cities and towns.

Under the heading of investments in municipal plants are included all loans and appropriations expended for construction purposes. An illustration of investment charges may be seen in the town of Belmont. In 1898 this town sold bonds to the par value of \$14,000 for the purchase and extension of a small electric plant, and the investment stood at \$14,000 for that year. During 1899 \$4,000 were appropriated for construction purposes and the investment was raised to \$18,000. Again, in 1900, \$3,000 were appropriated for construction, and besides this there was an overdraft of \$1,186.88 for the same purpose, raising the total investment to \$20,186.88.

The rules of the commissioners require that whenever an appropriation for construction is made by a town or city, whether the amount is to be raised by taxation or the sale of bonds, the sum to be raised from taxes or the par value of the bonds issued be credited to the construction account. If city or town appropriations are by their terms applicable to either construction or maintenance, only the amount expended for new construction is charged to that account. When at the end of a fiscal year any unused portion of an appropriation for new construction is covered back into the city or town treasury, it is debited to the construction account.

One of the most important distinctions to be observed, in the expenditures of municipal as in those of private gas and electric plants, is that between outlays for operation and for construction. There is a tendency in some cases to charge items to construction or investment that are really a part of operating expenses. To guard against incorrect charges of this sort the rules of the commissioners separate electric construction charges under a number of headings.

Under real estate are included the cost of land and the buildings or other permanent structures thereon. The steam plant is debited with the first cost in place and ready for use of its engines, boilers,



and other apparatus. The electric plant account is debited with the cost in place and ready for use of the dynamos and all electric instruments and fittings in the station. Electric lines are charged with the cost of all labor and materials for the first construction of overhead or underground circuits outside of the station, except where these circuits are on private property or exclusively for private use. The cost of arc lamps and of their erection in place on the streets is debited to their account. Incandescent lamps, with the labor and fittings required when they are originally installed on the streets or in buildings owned and used by a city or town, are charged to the account of incandescent town lamps. This account does not include the cost of lamps for renewals or for private lighting.

Inside wiring is debited with the cost of all labor and materials used to install lamps on private property for private use, except where such cost is included in the jobbing account. No repairs of these private installations may be charged to the inside wiring account.

Where an existing plant is purchased for a lump sum, each of the accounts just considered must be opened and debited with a proportionate share of the total price. The jobbing account includes those cases where work to be paid for by customers is done in buildings or elsewhere, and is debited with the cost of all labor and materials used, and credited with all sums charged for this work. No materials or labor used to repair the electric plant are charged to this account. At the end of each year the balance of this account is transferred to the profit and loss account.

The various construction accounts just considered seem to be sufficiently defined to exclude improper items, but the rules of the commissioners are equally specific as to the expenses of operation. Expense accounts for electric plants are separated under twenty-three headings, nameiy, fuel, carbons, oil and waste, incandescent lamps, globes, water, station wages, real estate repairs, steam plant repairs, electric plant repairs, repairs of lines and lamps, station tools and appliances, distribution wages, distribution tools and appliances, general salaries, committee expenses, general office expenses, rents, insurance, law expenses, claims, bad debts, incidentals. Some of these headings require no explanation. Incandescent lamps and globes in the expense accounts do not include any used in the original installation of street lamps. Station wages do not cover any labor for repairs. All expenses of repairs on real estate, steam and electric plants, and

lines and lamps are included under these headings, but not so the renewal of incandescent lamps. Station tools and appliances includes all tools, furniture, and movable apparatus not covered by one of the previous expense items. Under distribution wages come all expenses for the care of apparatus outside of the station and for collection of accounts.

Under distribution tools and appliances come all expenses for articles of this sort used for the care, repairs, or maintenance of lines and apparatus outside of the station. Horses and wagons used for the electric business are included in this account. General salaries include that of the plant manager and others not previously covered. Committee expenses are incurred for purposes of traveling and investigation and for auditors of the accounts. Claims are the sums paid for injuries to persons or property by the plant.

At the close of each fiscal year each of these expense accounts goes to the debit of the manufacturing account, which is credited with the income from the sale of light and power. The manufacturing account is closed by transfer of its balance to profit and loss. All supplies, except fuel, carbons, oil and waste, globes and incandescent lamps, are charged to a material account when purchased, unless wanted for immediate use, and when any of the supplies are used their value is transferred to the debit of the account to which they are devoted.

Investments in gas plants include the items of real estate, machinery, and apparatus used in the manufacture of gas, street mains, and meters. Under operating expenses in the manufacture of gas are included those for coal not used for enriching, gas oil and enriching coal, purifying materials, water, wages at works, repairs, and maintenance of works, and tools, apparatus and machinery. To the expenses of gas distribution must be charged wages of meter takers and clerks and collectors, renewals and maintenance of mains and service pipes, distribution tools, repairs and renewals of meters, and the setting, repairs and renewals of gas stoves. General salaries, committee expenses, auditors' fees, office expenses, rents, insurance, law expenses, claims, bad debts, and incidentals are also charged to operation in gas as in electric plants.

As the reports of cities and towns to the commissioners are required to be under all of the headings stated, it is evident that no material error in the division of plant expenditures between construction and

operating expenses and in favor of the latter can occur without falsification of the accounts, which is not to be presumed.

The municipal ownership act requires that an annual depreciation of not less than 5 per cent. on the cost of each plant and its losses shall be computed as an element of the prices to be charged its customers for gas and electrical energy. Cities and towns usually compute depreciation at the minimum figure of 5 per cent. When a plant is purchased or installed, depreciation for the first fiscal year or fraction thereof that it is operated is calculated on the investment. For subsequent years the cost on which depreciation is calculated is the total investment at the beginning of each year minus all previous depreciation charges. When in the first half of any fiscal year considerable additions to investment in any plant are made, depreciation on these additions is computed at the regular rate for the second half of that year, and the resulting amount added to the main depreciation charge. Under this system the yearly depreciation charge grows constantly smaller unless the additions to the investment at least equal the amounts deducted for depreciation.

An illustration of the working of these depreciation charges may be seen in the case of the Taunton municipal electric plant. That city completed the purchase of, and began to operate its plant on July 1, 1897, the price paid being \$125,000. For the fiscal year ending June 30, 1898, the depreciation charge for the Taunton plant was \$6,504.91, or somewhat more than 5 per cent. of the price paid for it, because depreciation was also computed on some additions made to the plant during the first half of the fiscal year. The investment in the Taunton plant reached \$139,401.75 on June 30, 1898, and \$145,301.75 on June 30, 1899, but the depreciation charges for the years ending June 30, 1899, and June 30, 1900, were only \$6,646.35 and \$6,670.96, respectively, in spite of the fact that a part of the additions to investment occurred in the first half of each of these years.

It seems to be an open question whether this system of depreciation charges is more or less correct than one in which depreciation is calculated on the total investment at the beginning of each year. This latter method with a given per cent. of depreciation obviously results in a larger yearly charge. However this question may be decided there seems little doubt that the minimum rate of 5 per cent. named in the municipal act is ample to represent actual depreciation.

The practice in computation of the charges for depreciation in

municipal gas and electric plants applies the 5 per cent. to the cost of all parts of the plants, in accord with the apparent meaning of the act. Now 5 per cent. is too small a rate of depreciation for some of the steam and electrical apparatus of a plant, but on the other hand it is too much to allow on some other parts, and every plant includes land which may actually increase in value. As the amount of real estate used by a municipal gas or electric plant usually increases much more slowly than the generating and distributing apparatus, the item of real estate in the assets grows to be relatively less important from year to year, as deductions are made for depreciation. To get at the approximate value of real estate in any one of these plants it is thus necessary to go to the first available statement of assets, as the separate items are not given under the head of investments. When the plant at Taunton was purchased in 1897, real estate represented a little under one-fifth of the total investment. Real estate represented more than one-sixth of the investment in the plant at Westfield, purchased by the town in the year of 1899. Concord completed the construction of a plant in the year of 1900, and real estate required more than one-fifth of the investment.

In the reports of the commissioners the values assigned to the various plant assets represent the amounts actually paid for these items, less the depreciation charges that have been made against them. The item of cash includes all appropriations in the hands of the plant manager or subject to his draft. Every item of investment, therefore, decreases at the rate of 5 per cent. from year to year. An illustration of this may be seen in the values given for the item of real estate in the balance sheets of the Taunton plant. On June 30, 1898, this item stood at \$21,612.74. A reduction of 5 per cent. brought it down to \$20,532.11 on June 30, 1899, and another depreciation charge of a like per cent. reduced the item to \$19,505.51 on June 30, 1901. The depreciation charges on this real estate for the two years were thus \$1,080.63 and \$1,026.60 respectively, though the land was probably increasing in value.

The municipal ownership act of 1891 requires each city and town that establishes a gas or electric plant and issues bonds in payment therefor, to provide a sinking fund for the payment of these bonds. The requirements of these sinking funds and the interest on the bonds must be met by annual appropriations from the town or city treasury.

The prices charged by a municipal plant for gas and electricity sold to private consumers are the same to all customers, except in so far as they are subject to general discounts, according to the amounts used or for prompt payment, of which anyone may take advantage. Prices to private consumers may not be put at less than cost, except with the written consent of the commissioners. Neither may such prices be greater than is necessary to afford above the cost a profit of more than eight per cent. yearly on the net investment in the plant. The word "cost," as defined in the act, has an unusual, but accurate meaning. This "cost" includes all operating expenses, interest on the net investment in the plant, less amounts received for jobbing, at the rate paid on its bonds, the requirements of the sinking fund established to meet these bonds, and the charges for depreciation.

In order to fix the prices of service to customers, the gas or electricity used by the town or city is charged to it at cost, as here defined. Under this definition of cost, a city or town will, when the bonds are paid, have got back their face value, with interest, will have accumulated a depreciation fund equal to the original investment, and will have whatever remains of the original plant besides. It should be noted, however, that the municipal act does not attempt to define the actual cost of electricity used by cities and towns, but merely gives "cost" a special meaning in order to fix prices to private consumers.

Incomes of municipal plants from the sale of gas, gas residuals, electrical energy and the rent of motors, meters, stoves, and engines are included in the manufacturing accounts. In most cases the value of gas and electricity used in public buildings is also placed with the income in the manufacturing account. On the other side of this account are placed all expenses of operation and management, as before outlined. Gains or losses from jobbing, and interest received from any source do not figure in the manufacturing account, but appear in profit and loss. No value for the electric street lighting is included in the manufacturing account, and the result is that the annual balance sheets show a loss in operation for almost every electric plant, because street lighting is a large part of the total service from such plants. This loss is merely nominal, and if a fair allowance is made for the value of street lighting the apparent loss is changed to a substantial gain.

Nowhere in the reports of the commissioners is any value assigned to the street lighting done by municipal plants, but the cost of this

lighting to cities and towns is computed. This cost is not the one specially defined in the municipal act for the purpose of fixing prices to private consumers, but fairly represents the outlays of cities and towns for street lighting from their electric plants. To determine the total cost of street lighting from each plant yearly, the nominal loss in operating is added to the interest on the investment at the rate paid on the bonds, and to the depreciation charge less jobbing gains and interest on current accounts. In any case where the value of electric light supplied in public buildings has not been included in the income as stated in the manufacturing account, this value is deducted from the nominal loss in operation, before the cost of street lighting is calculated. All the street lighting is done with electric lamps, and interest and depreciation on gas plants are not, therefore, included in the total costs of street lighting. The total cost of street lighting in each city or town is divided among the different electric lamps in proportion to the energy that each nominally consumes.

Owing to the legal provisions relative to municipal gas and electric plants, and to the rigid and minute oversight of their affairs by the commissioners, the results shown in the reports seem worthy of careful consideration.

ALTON D. ADAMS.

BOSTON.

## SLAVERY IN GERMANIC SOCIETY DURING THE MIDDLE AGES.<sup>1</sup>

### III.—*Liberation.*

The personality of the slave being once recognized, even if only indistinctly, his value as thing became more obscured, and he was a man in bondage with few rights, indeed, but not without them entirely. The lord wielded absolute power over him only in theory, practically he protected him, and was his economic mainstay when the slave could not manage for himself. The condition of half-free thus dawned for the slave; not free and yet not quite a slave, a little of each, more of the latter than of the former—this is the next definite stage.<sup>2</sup> Still there were ways to make him absolutely, unrestrictedly free, and the original humanity in him restored to its full rights. But these were the rarer instances, because they were the more radical and perilous, while his gradual liberation through the successful work of generations was the far more common.

<sup>1</sup> Authorities consulted (additions to previous list): MANSI, *Amplissima collectio conciliorum*, Vol. XI; MAURER, *Die Freigelassenen nach norwegischem Rechte. Sitzungsberichte*, 1878; MAURER, *Die Bekehrung des norwegischen Stammes*, Vol. II; STUTZ, *Geschichte des Beneficialwesens*, Vol. I; PAPPENHEIM, "Launegild und Garethinx," in GIERKE's *Untersuchungen*. Heft. 14; SOHM, *Reichs- und Gerichtsverfassung*, Vol. I.

<sup>2</sup> This stage in modern conception would correspond to the serf. Still, even if SEEBOHM's *English Village Community* (p. 405) says: "Whenever a lord provided his slave with an outfit of oxen, and gave him a part in the ploughing, he rose out of slavery into serfdom"—yet, the word serf there seems to be used only in its modern theoretical sense. It is safe to say that the real change was neither so sudden nor so complete as the passage would otherwise indicate. At our distance of time, no doubt, the gradual movement is imperceptible, and we see as sudden changes what were necessarily slow. At any rate, the name *servus* remained for the serf, and, although we know the condition of the serf (as a type) only from the period of its crystallization (twelfth and thirteenth centuries), it is, perhaps, due to the identity of names that the development of what is technically called serfdom is usually ascribed to a much earlier period. But there is no evidence to show that the lord, or the law, for that matter, distinguished between the *servus* of the one kind or of the other. The dividing line was so floating, and of such individual (local) rather than general (national) importance, that the identity of names may as well speak for a prolongation of slavery. The *servus* of the one group had opportunities which the other had

We have already mentioned the agencies that helped to bring about the amelioration of slavery. We shall meet them again in studying the liberation of the slave, acting, however, less generously now that the last step is to be taken, but on the whole, tending to help him forward. The gradual leveling of the free and the rise of an almighty aristocracy that demanded a large retinue, such as the later Frankish Empire and the early feudal period present, assisted the slave greatly. Philanthropic tendencies on one side and economic-political changes on the other, also worked in his favor. It cannot be said that the end was reached before the eleventh and twelfth centuries, and not quite even then. The development of a half-free class took the place of the previous development of an unfree; but this new class rose largely from elements which had no connection with the older slave class, on the contrary, it was created by the wholesale reduction of the bankrupt German freeman to economic servitude, such as had taken place many centuries before by the gradual reduction of the Roman free farmer to colonus. As in even Republican Rome there was room largely only for capitalists and laborers bound to the soil, so in the later Frankish empire, there was rarely space for others than the feudal lords and their tenantry, of which the originally unfree portion had a tendency to work upwards, while the free tended to sink below. In the meantime the original slave became absorbed among the free and disappeared.

not, but these opportunities did not count for enough to warrant treating the new as so different from the old as to give it a new name. The *mansuarius* was distinct from the *famulus*, the *puer*, the *ministerialis*, but he was *servus* as well as they. The *servus* settled on land, remained to all intents and purposes still a *servus*, i. e., a slave, until he could be distinguished as belonging to a class, a change which it undeniably would take some generations to bring about fully. As little, therefore, as the Virginia slave, given a garden patch to cultivate and a cabin to live in ceased to be a slave, because he was no longer an inmate of the manor, or as little as the villein of later ages ceased to be a villein *de facto* and *de jure* because he ran off into the city and became absorbed among the many working hands there, just so little did the slave of the Merovingian or Carolingian time become a serf in our sense until a reasonable time had gone by, during which this new condition and all it involved had become established and recognized as a definite feature of social and economic life. I think, on the whole, it may be said that a great deal of unclearness exists in regard to what is to be the criterion of a serf; is he a slave liberated to the state of serf, or is he a slave settled on land merely and growing out of slavery by degrees into a state not definite at first, but becoming by imitation something similar to the *litus*, the *colonus*?



There is no topic more difficult to treat systematically than the liberation of the slave. National peculiarities, a variety of conditions which show the governing thought each time in a different light, and are often hard to bring under one rule, demand each some special attention. For the sake of a more rapid survey, and as an attempt to contribute towards the solution of the question, the main principles are here briefly pointed out.

There were various ways in which the slave could be given his freedom:

1. His liberation could be either complete or limited (conditional);
2. It could be of public or private character ;
3. It could be gratuitous to the slave, or granted on the payment of his (nominal) value to the lord, either by himself or some one else;
4. And it could be given by nation, king, church, or private individual.

In regard to the first three points, the liberation which was public was often complete and sometimes gratuitous in character, though oftener dependent upon the payment of the stipulated fee; while the private and unceremonious liberation was likely to be conditional and limited because of the absence or only partial payment of the proper fee.

In regard to (4) the source of liberation, it appears most likely that church and king, because of their position, should be oftenest inclined to give freedom unconditionally and without fee; while the nation, owing to the nature of the act should be least inclined to liberate and should do it only with great sacrifice and ceremony. Private individuals, however, would be likely to do so oftener and in order to secure benefits for the master rather than for the slave. There is evidence, however, to show that the church favored manumission of an unlimited nature largely only where she was not herself concerned; while by her frequent limited manumissions of her own slaves she most of all helped to create a class of half-free as a regular institution and economic necessity.<sup>1</sup> The king as the representative of the even greater landholder, the state, followed the example of the church and manumitted to half-free and *glebae adscriptus* on his own estates. But as representative of the nation and holder of the highest Christian

<sup>1</sup> LÖNING, *Geschichte des deutschen Kirchenrechts*, Vol. II, p. 229. Protection on the part of the church for the manumitted, p. 232. Her policy in this, pp. 233 ff.

authority within the state, the king more than any other person helped to give the beneficent teachings of the church regarding the slave the active force which it demanded. The king at an early period became the manumittor on a large scale and awarded persons thus manumitted a substantial protection and support such as no one else could or would. Hence the king and the freedman manumitted through the participation or in the presence of the king, came to have a vital interest in one another. The freedman's property passed by death to the king, and his *wergeld* was paid to the king, instead of to his own family, since he was not yet legally supposed to have any family. On the other hand, the nation<sup>1</sup> when it liberated, liberated completely. But it did this only in exceptional cases, and it soon yielded the honor of performing the ceremony to the king. As a matter of course, however, neither church nor king nor nation could manumit without the consent or the desire of the lord. Private individuals, again, naturally favored the limited rather than the unlimited manumission. Yet only private individuals, by introducing the slave into a family of free, could offer him the most direct and simple way of becoming a freeman.

Of the two, complete or limited freedom, I hold the latter to be the original and older.

Freedom must at first have been only conditional, a transient thing which could be given and taken away, having almost the character of an experiment. Not that we do not know of cases of complete freedom in very early times, but the whole proceeding was so extraordinary, the slave was given freedom with so much solemnity, his position seemed so new, so without foundation in his previous life, that such freedom, however great a boon, must have impressed the slave himself as having too many dangers in its wake to make it seem safe or even very desirable. The slave had no kin among the free, could expect no effective help, had no established relation to anyone but his lord; the king not being the natural protector of any but those he himself liberated. The freedman, therefore, was like a lone tree planted *on* a rock instead of in the shelter of it, exposed to the fury of wind and weather. And if the slave, who had lived in the shadow of someone's power all his life, himself may have desired only a gradual rising to the position of freeman, it must be supposed the owner had much less objection.

<sup>1</sup>As represented by the provincial assembly or the army or even the assembly of the hundred. In Iceland, in some places, the chief priest, *goði*, figured as manumittor, in England the *viccomes*.

The slave, therefore, most likely sought the position of *litus* or *colonus* or of *aldius*, or he wished attachment to the lord's personal service, rather than absolute independence.<sup>1</sup> As a *litus* or *aldius* the freedman had the security of belonging to a class which the law recognized and protected. The Anglo-Saxon or Saxon or Frisian *litus* or the Lombardian *aldius* was one of the nation with certain guarantees, whereas the slave had none. The northern *frjðlsgjafi* who had been given his freedom, but still served his lord—these and others indicate the provisional stages which perfectly suited the case and made no break in the logical development. Uncommon, and therefore interesting mostly as an anomaly, is the liberation which at the same time was complete and gratuitous. In most cases, however, it is merely a conjecture whether the liberation was gratuitous or not, since the sources give us small if any information concerning this fact.

It is well to begin with absolute liberation, since that was the most extraordinary. In the liberation of the slave the lord could have had but two objects in view, either his own benefit or that of the slave. If there were reasons other and greater than mere material benefit why the manumission should be complete, the slave would be given freedom accordingly. Such reasons the church gave in plenty when she recommended liberation of a fellow-being as a means of redemption and a penance for sin. In this case the benefit done to the slave was so clearly covered by the benefit to the lord that it seems as if freedom should have been both complete and gratuitous. And yet equally often the liberation given was of the most limited character.<sup>2</sup> The

<sup>1</sup> It is certainly reasonable to suppose that the lord was unwilling to grant more, and the slave had to take what he could get. But it seems equally reasonable that the slave who had reached so far as to have freedom offered him should likewise have an opportunity to choose what seemed to him safer, knowing the prejudice against him. The Icelandic *sagas* speak often of slaves who have freedom offered them as ultimate reward for some very perilous undertaking, but the whole tenor of the northern laws point to this as being an extraordinary occasion, and the reward therefore uncommon. That limited freedom should precede unlimited seems to me, therefore, most natural and indisputable.

<sup>2</sup> Vide Swedish Law, O. G. (in PAPPENHEIM, *Launegild und Garethinx*, p. 41): "Now a man for the salvation of his soul gives a slave (*annöfuglum*) freedom, then he (the lord) shall both answer and make complaint for him (the slave) until he is introduced into a family, and until then he can give no oath nor legally make a purchase, and whatever is done to him shall be paid for as if it were done to a slave and not higher. § 1. If they will now take him (the slave) into a family this shall take place with the permission of the owner," etc.

Germanic nations from the earliest time knew and practiced a complete liberation without cost to anybody but the lord. This occurred when the latter wished to reward for long service or for special service (saving of master's life, *e. g.*). The nation also could liberate upon the plea of extraordinary merit. The slave then was freed by having arms given to him in the presence of everybody at the public meeting place, perhaps in expectation of a hostile attack or in accordance with the law passage: "When common danger calls all (free and slave) to arms in the defence of the country the slave who succeeds in slaying an enemy in battle is free."<sup>1</sup> The slave also acquired complete freedom by being introduced into the community of free, either directly, by being presented as free by free in the public assembly, "*leiða i lög*,"<sup>2</sup> or by being introduced into a family of free; which again might have some relation to the possibility of the slaveborn child of a free father being brought up as free if manumitted by the father before it was three (or fifteen) years old.<sup>3</sup>

These methods belong to the oldest and most primitive modes of giving a slave his freedom. The slave who was manumitted on the plea of extraordinary merit by being given arms in the company of free, and the child who was liberated before the age of three (or fifteen) could not have paid anything for their freedom. And perhaps it was this child (or boy) also who was later introduced into the assembly of free as a further security of his personal liberty. In other cases of complete manumission it is far less certain whether the act was without cost to the slave.

One of the more elaborate methods of manumitting to full freedom was the English mode of transferring the slave from the hand of the master to that of another freeman (in this case the vicecomes), who manumitted, as a symbol of the separation from the lord. This was always done in the presence of the assembled free. The liberated was then shown the open road and door to signify that nobody could restrain him and he was given a freeman's sword and spear.<sup>4</sup> An even

<sup>1</sup> GpL., c. 312. ". . . látit fara herör ok stefnt saman þegn ok þræl." *Saga Olafs hins Helga*, ch. 129.

<sup>2</sup> FINSEN, *Grágás, Kgsb.*, ch. 112. "þá er manne frelse gefit at fullu er hann er i lög leiddr."

<sup>3</sup> GpL., ch. 57, 58. See further, p. 253.

<sup>4</sup> *William's Laws* (SCHMID), III. p. 15. Si qui vero velit servum suum liberum facere, tradat eum vicecomiti per mamun dextrum in pleno comitatu, quietum illum clamare debet a jugo servitutis suae per manumissionem, et ostendat ei liberar vias et portas et tradat illi libera arma scilicet lanceam et gladium; deinde liber homo efficitur.

more characteristic ceremony was that among the Langobards by which the slave amid clashing of arms in the assembly (*gair þinx*) was passed from the hand of the lord to other freemen till the fourth was reached who then declared him free and completed the act by leading him to a crossway, bidding him be at liberty to go where he wished. The slave was then given arms and was henceforth a full-free Langobard.<sup>1</sup>

When the king manumitted as the lord of his own estates or as the head of the nation upon the plea of another, he might do so gratuitously with the freedom as a gift to the slave, but where the king did not manumit his own, the lord of the slave must of course have agreed to have it thus performed.<sup>2</sup> As already indicated, the king soon stepped in and became the chief actor in the drama in which formerly the free owner and the public assembly played the whole part. This participation of the king, however, shows to my mind the extraordinary nature of the complete manumission (the king could not take part in anything less), whether it was gratuitous or not. Thus among the Franks the slave was liberated before the assembled freemen by the king (originally the lord) knocking a penny from the slave's hand so that it flew over his head. This was a sign that his services and dues were dispensed with. The king likewise liberated by command or by letter which made symbolic acts and ceremonies unnecessary; but this has less interest to us, since it is not Germanic in character.

The church was not the first in chronological order to benefit the slave, but when she began, she was at least the most constant and untiring advocate of the betterment of his condition, and through her influence strongly animated both nation and king to follow her advice in this direction. The king in particular became the willing instrument of her teachings, mainly because the dependence of the manumitted upon royal protection suited his own absolute tendencies. In the manumitted the king found the same obedient subject and follower as he had found formerly in the slave. The church in imitation of the Mosaic law succeeded in introducing paragraphs into some of the national codes according to which the slave who had served his master seven years was to be set free.<sup>3</sup> From the nature of the case (the

<sup>1</sup> *Edict. Rothar*, chap. 224.

<sup>2</sup> The lord could as little be compelled to liberate his slave as he could be compelled to sell him. *Lex Visigoth.* V, 4, 17: "Nullus servum suum vendat invitus."

<sup>3</sup> *Aelfred's Laws*, Introd., p. 11. Swedish Laws, see reference in MAURER, *Die Freigelassenen*, p. 23, note 5.

period of seven years) it seems more likely that this rule was established for the purpose of benefiting the enslaved freeman rather than the slave proper. Likewise in imitation of Mosaic precepts the lord who mutilated his slave in a peculiar fashion (eye for eye, tooth for tooth) or who compelled the slave to work on Sundays was obliged to give him his freedom in return.<sup>1</sup> Through the influence of the church, but upon the command of the king, the provincial laws of Norway decreed (eleventh century) that every year at Christmastide a slave should be given freedom and the different districts within the province should contribute to that effect.<sup>2</sup> To the same influence it was due that a liberation before the altar or in the church (with the Gospels placed on the slave's head) had, under certain circumstances, the same effect as an announcement in the assembly of the people.<sup>3</sup> The church set slaves free with the purpose of absorbing them into the body of clerics.<sup>4</sup> Although the lower orders were often composed of slaves and serfs (in case of patronized churches these were still in the power of their respective lords), to the higher orders no one could be admitted who had not been liberated first.<sup>5</sup> In imitation of Roman custom, the church liberated slaves of her own by means of charts (*carta*), and thereby helped to make this method more general among the Germanic nations. But in most cases the church liberated only to half-free, because she needed cheap labor and a large number of ready hands.

Thus far we have found freedom yielded, or supposed to be yielded, without any expense to the slave. The lord could allow his slave to be bought free by some one else, but it must always have been in the power of the lord to limit the liberty to be given as well as the payment. A mode more in keeping with the natural progress of

<sup>1</sup> *Aelfred's Laws*, Intro., 20. *Ine's Laws*, 3. *Cnut's Laws*, II, 45, 3.

<sup>2</sup> *GpL.*, c. 4 and 5. *FpL.*, III, c. 19. Compare *Aethelstan*, Prologue 1.

<sup>3</sup> *GpL.*, c. 61. *Wihtrad*, 8. *Liutpr. Leges*, 9, 23, 55, 140. *Pact. Allamann.*, 2, 45.

<sup>4</sup> "Proinde instituit haec sancta synodus ut omnes parochitani presbyteri, juxta ut in rebus sibi a Deo creditis sentiunt habere virtutem de ecclesiae suae familia clericos sibi faciant." *Concil Emerit.*, a. 666, c. 18. *Mansi*, Vol. XI. "Jamdudum illa pessima consuetudo erat ut ex vilissimis servis fiebant summi pontifices," *Vita Ludovic. Imp.*, c. 20. *Mon. Germ. Scriptores*, Vol. II.—*Concil Wormat.*, a. 868, c. 40.

<sup>5</sup> MILMAN, *History of Latin Christianity*, Vol. II, p. 549. Löning, Vol. II, pp. 280 ff. STUTZ, *Geschichte des Beneficialwesens*, Vol. I, pp. 150 ff.; pp. 201, 224, note 37. Guérard, Vol. I, p. 350. "Le fiscalin Ebbon qui devint archevêque de Reims" (*Car. C. epist. ad Nic. I, pap.*). "Fiscali nostro Fulconi abbati." *Diplom Car. C.* a. 857.

things was to allow the slave to buy his freedom by his work, or, more exactly, by the product of his work, and to make the completeness of freedom at first dependent upon the payment in full and in one sum. And here we are again confronted by the question of the slave's peculium or other means of acquiring property of his own, without which it seems impossible that he could pay the price of liberty demanded. As for the question whether the slave might not draw income from other sources than land, it is indeed possible and under circumstances even probable that he might be hired out at some trade or work for himself as an artisan; but this can only have happened in the large cities, centers of commerce on the coast or on the inland routes, where alone many industries could thrive. For the territory of the old Roman Gaul, such centers might not have been few nor far between, but for the bulk of the Germanic population possession of land and what it brought was the natural source of wealth; and this is a condition of affairs which always makes movement within society and changes in fortune very slow.

Peculium has already been defined as cattle or land, or where this failed, the opportunity, in form of extra time or extra occasion for earning, given the slave with the tacit understanding that what he thus came to possess would be his own. It seems clear that the peculium was in the first place intended not for the ultimate redemption of the slave but for the maintenance of his family. Whatever it might yield beyond this was to be counted as pure gain, and might help the slave in the further improvement of his circumstances, *e. g.*, in gaining that peculiar, strictly-defined relation which characterizes serfdom; or where this did not exist, it might finally assist him in buying his freedom. That at first the slave was hardly able to make more than a scant living out of his tenure, with the duties which the lord imposed, is only too probable. The phases of this new development are like most of what concerns the slave, as yet largely matter of conjecture; but it seems perfectly certain that, far from emancipating the slave, this cultivating a bit of land for his own good tied him more securely than ever before to the interests of the lord.

The personal relation was changed, but the substantial dependence upon each other for the production of the necessities of life became closer than ever. The slave could not live as a free man on his bit of holding, paying his rent and being under no further obligation to the lord. He was to a higher degree the tool, the machine, from which

was sought as much return as possible and whose efficiency provided the labor necessary to keep up the estate. To the slave, again, the lord remained as before the main source of bounty, the one who furnished him with an outfit and the means of living, however scant, and the master whose commands directed his actions. It was thus that the slave was gradually turned from a field hand ready for all sorts of work into the regular field laborer,<sup>1</sup> upon whose unlimited weekly work and constant services the lord depended for the tillage and general maintenance of his estate.

The question how soon and how much the slave could earn, aside from his dues, his work and the maintenance of his family seems wrapped in an almost impenetrable darkness. And it is vain even to hope for a definite solution of this the greatest of all problems in connection with the slave. Perhaps the best known instance of dependent landholdings of all kinds, from that of the needy free to that of the slave just emerged from personal bondage, is found in the *Polyptyque* de l'abbé Irminon, which, although from the ninth century, gives the best and completest picture of the prevailing agrarian conditions of the Frankish period. Here three kinds of landed holdings are spoken of as existing apparently independently of each other: the *mansus ingenuilis*, the *mansus lidilis*, and the *mansus servilis*. On these are settled rather indiscriminately *free*, *coloni*, *liti*, and *servi*, a circumstance tending to show that the difference among the classes was not very great and that what difference there was originated in the character of the customs attached to the holding rather than in any strong personal distinction. Even as early as this the various grades of tenants, unfree, half-free, free, were fast melting into the one more or less solid multitude of those who personally were somewhat free, but economically decidedly unfree; a mixed condition especially characteristic of the later Middle Ages, as seen in the *serfs*, *villeins*, *eigenleute*, *hörige*, *hintersassen*, etc. In the ninth century, however, the holdings rather than the status of the tenants indicated the original distinction between each, a distinction which must once have been clearly present to men's minds, otherwise the three kinds of holdings would not have been kept apart so clearly during the centuries following the German conquest.

That the *mansus servilis* was not infrequently parceled out into

<sup>1</sup> In conformity with the now almost classical presentation which Seebohm gives in his *English Village Community* of the Saxon *þow* and the *gebur*.



halves and fourths speaks of a more intensive cultivation, but also of a much larger original holding than it would be thought possible a slave could profitably manage. There was accordingly more or less irregularity in the size of the slave's holding, and also in his dues, owing most likely to the quality of the land.<sup>1</sup> But whether whole, halved, or quartered, the slave holding was on an average 10 acres of tillable land and meadow, including a patch of vineyard. As long as the present great uncertainty prevails in regard to the meaning of the surface measurements of the past, the tables worked out by Guérard in his *Prolégomènes*<sup>2</sup> will remain our sole assistance in establishing even approximately the extent of land held by the unfree tenant. The point of greatest interest here is the opportunity thus given to obtain perhaps an idea of the facilities the slave had to earn and save something. Perhaps modern France might furnish data for contrast in this matter, if not for comparison. During the last 30 years by far the greater number of French peasants have been settled on property less than 13 acres per owner. But the frugality, diligence, and industry of the French peasant are proverbial, and besides running his farm, whether leased or owned, he contrives to make additional income by working on other people's farms as well. His food and clothing cost him very little and his only grievance is his taxes. He is therefore most likely able to make his living and often more than his living with very small resources indeed.

The slave, however, although in possession of a farm with soil less overtaxed and, therefore, presumably more even in its productivity, and although he demanded infinitely less for his well being, worked under difficulties such as no free peasant of modern time is encumbered with. Besides, he was at a general disadvantage since his interest was a very unimportant side issue, for which he was obliged to steal his own time, as it were, instead of giving it openly. The natural result was that the slave, when all dues were paid, would make either a very sparse living or none at all, thus constantly falling back upon

<sup>1</sup> The land may have been woodland or waste to be cleared and brought into cultivation and have thus consumed a long time and much work before it could be made equal to other farms of smaller size. When it was sufficiently redeemed to support more than one it was parceled out to several. In such total darkness as rests over the economic condition of the lower and lowest classes during the later part of the Roman period and the beginnings of Germanic settlements, only the simplest, most straightforward reasoning can hope to be more than wild speculation.

<sup>2</sup> Forming the first volume of the *Polyptyque*.

the lord's charity. This again must have led to a gradual regulation of weekly service so that the unfree tenant should have more time for himself and could come to pay his dues properly. And here the church very likely was the one to set an example. The *Lex Bajuvariorum*<sup>1</sup> and *Leges Allamannorum*<sup>2</sup> give the best known instance; according to which the slave, that he might not be oppressed beyond his endurance, was to work three days in the week for the lord, and his services and contributions were especially enumerated. But, even so, in a great many instances the work of the slave was unlimited, and he was expected to do as much as the lord needed or wanted to be done. For the servus of the *Polyptyque* and other records of the time, although not identical with the servus of the Lex Salica and other laws, is not a serf, but still a slave; and it is useless to maintain that the slave when settled on land ceased to exist as such. The term *mansus servilis* could not have come into existence if it had not been the holding of a slave and acquired only gradually a different meaning. The original arbitrariness of the relation between master and slave still clung to it even after slavery became real instead of personal. It is obvious in the relation between lord and serf, since the latter was still at the lord's bidding even beyond his customary duties. The starting point of both relations is by this clearly indicated. The servus, therefore, in the great majority of cases, gave the lord more or less unlimited service in the form of *corvey*, *manoperas*, *carroperas* (*hand-und spanndienste*), in the plowing of fields at certain times, in work in the vineyard, watch service, the cutting of trees, and whatever else might be demanded; his duties varying with localities and customs of the estate or the obligations inherent in the nature of his holding. He paid his tribute in equally various ways, in sheep, poultry, wine, shingles, axes, iron, or whatever necessities were assigned to his farm as its share. No doubt all this was the result of a slow accumulation of wants and of the growing prosperity as the country became cleared and built up. But the servus was evidently kept closely watched and his obligations imperceptibly increased till he had just as much as he could bear. The slave just settled represented but the beginning of these wants. As he was new and unaccustomed to thrift there was perhaps little to be gained from overtaxing him.

To the servus the chance for accumulating anything beyond the necessary depended to a large extent upon whether he had oppor-

<sup>1</sup> C. 14; 6.

<sup>2</sup> C. 22 (*codd. A.*); c. 22 (*codd. B.*).

tunity for trade, whether a river was near, or a city or a marketplace; but it depended even more upon the character of the soil, the size of his family, the nature of his dues, and whether the general prosperity of the domain was such that the work exacted was not too heavy. With a household of three to five children, such as the *Polyptyque* shows, the duties might be distributed, but the tenure was after all only one, and the greater the number to draw sustenance from its productive power, the smaller eventually the chance for savings. In case of a good harvest the surplus may often have been considerable; in drought or other misfortune famine may equally often have been the unavoidable result. The attempt to make the slave provide for himself was doubtless often a mere experiment that failed. A generation may have been necessary to teach him economy. But inasmuch as the slave, whatever his capacity, must always have retained the power to receive and keep gifts,<sup>1</sup> he had always opportunity for accumulating something toward his liberation. To say anything more definite is unfortunately out of the question at the present stage of inquiry.

I am well aware of the fact that the price of liberty is mentioned only in the rarest instances. In Northern laws the fee is stipulated.<sup>2</sup> Other laws are mute.<sup>3</sup> But this cannot mean that liberation in all such cases was gratuitous, rather that the slave paid with such amount as would correspond somewhat to the benefaction bestowed upon him, and the whole matter was of so small importance that the laws found no cause for special mention. In Norse laws, too, liberty can be given without payment, complete and gratuitous.<sup>4</sup>

<sup>1</sup> Mentioned incidentally, *Liutpr.* c. 113.

<sup>2</sup> Six weighed ounces (Norweg.) = 4.2 sol. *GpL.*, c. 62; but it is reasonable to suppose that it must have been more ("leysings aura" suggests something different from "þræll æða ambótt verðaura sína." *GpL.*, c. 61). 2 weighed marks (Swed.) = 12 sol. *AMIRA*, Vol. I, p. 445; but in this case it is evidently a free man enslaved for whom another pays, and it does not prove that this is what a slave of long standing would be expected to pay for himself. Same author, p. 478: 3 weighed marks = 18 sol. (?). None of these, however, quite fit our case.

<sup>3</sup> The throwing of the denar is symbolic, and cannot have represented the actual fee. The old documents speak repeatedly of 4 den. as the symbolic indication of entering the state of bondage, but where the redemption from slavery occurs 2 den. (sometimes more) are mentioned as a census imposed upon the freed person. There is something distinctly Roman in this. *Coll. Sang.* 16. *Form. Augen. Coll. B.* 21. *Extrav.*, I, 19; 20. See also LOERSCH & SCHRÖDER, No. 51; 71.

<sup>4</sup> (Skattalaust oc skulda). *GpL.*, 61.

The more regular method of liberation, however, according to these laws, was neither always complete nor gratuitous, and expressed the relation between master and slave very clearly indeed. Liberation by this method was represented by two separate stages; first, a partial gift, and next a purchase on the part of the slave. These events may well have been removed from each other by several years, or both may not have happened in a given case. The gift of freedom might take place in church by laying the Gospels on the slave's head or by seating him, while the formula was spoken, on the "chest of arms," which was below the seat of the head of the family, or even in this very seat itself.<sup>1</sup>

If he remained only thus partially liberated, he enjoyed no full freedom; he was henceforth a freedman of inferior character, a *frjálsgjafi*,<sup>2</sup> under numerous obligations to his master. He could have more perfect freedom only by paying the stipulated fee and holding what was called his liberation beer.<sup>3</sup> This was a festivity prepared by the (manumitted) slave to celebrate and at the same time make public his release. Here in the presence of company sufficiently numerous to witness the act, he was to offer the lawfully demanded fee, which, in this case, must be called nominal, since it represented only one-fourth of what was looked upon as his usual market value, *i. e.*, 6 aurar *versus* 3 mark = 24 aurar = 18 sol.<sup>4</sup> According to another provincial law, a

<sup>1</sup> GpL., c. 61. "Now the man leads his thrall to church, or to seat on the chest, and gives him freedom," etc.

<sup>2</sup> To whom *freedom was given* as distinct from the one who *redeemed himself*, *leysingr* (although the term *leysingr* is sometimes used for both kinds of freedmen).

<sup>3</sup> GpL., c. 62, "Now (if) the (would-be) freedman (*leysingr*) wishes full freedom in regard to what he buys and whom he marries (no *þyrmslir*), then he shall make his liberation beer, beer of at least three bushels (of malt), and bid to it his lord with witnesses, and bid not his antagonist, and seat him (the lord) in the high seat; and lay six aurar in the scales the first evening, and offer him *leysings aurar*. Now if he (the lord) accepts them, it is well, but if he gives them back, then it is as if they were paid. But if he (the lord) will not come, then the *leysingr* shall lead (forth) his witnesses that he invited him (the lord) to the thing, and let the high seat stand empty, and lay six aurar in the scales, and invite him (the lord) to be seated the first evening (as if he were there), that is called *leysings aurar*. But if he (the lord) has some one (there) to receive the offer (in his stead) it is well, but if no one receives it, then he (the *leysingr*) shall keep the money till the next day and offer it to him at the (midday?) meal. But if the man does not accept it then he (the *leysingr*) shall have it and keep it till he claims it to whom it belongs; then the liberation beer is held fully.

<sup>4</sup> GpL., c. 62. FpL., IX, c. 12. *Bjark.*, III, c. 166.

ram was to be slaughtered at the liberation beer, its head cut off by a freeman, and from its neck was to be taken the so-called *halslausn*; in other words, the liberation fee (perhaps hung in a bag around the ram's neck (Maurer)) as a symbol of the final deliverance of the neck of the slave from the yoke of thralldom and the fear of death to which he was constantly subject.<sup>1</sup> The act was afterwards announced at the assembly, in order that all might know it and no complications arise. This announcement was to be repeated twice during twenty years, by which time it was supposed that nobody would endeavor to contest the right of the liberated. The freedman was henceforth *leysingr*, not *frjálsgjafi* any longer.<sup>2</sup> The slave whose right to choose his place of living, to marry, and to manage his property had not been contested during twenty years was to be looked upon as free.<sup>3</sup>

The slave, however, to whom the king awarded liberty had no need of any liberation beer.<sup>4</sup> Likewise, the property given the liberated by the king became a family possession with the quality of inherited estate.<sup>5</sup> The slave to whom the folkland yielded liberty was free from serving in the army.<sup>6</sup>

If, in these cases, according to our sources, the liberated acquired full liberty and equal rank with the free, it was because the necessary formalities had all been attended to: the private event had been completed by the public. The natural conclusion seems to be, therefore, that the less solemn and circumstantial, the more private in nature the act of liberation was, the more it had the character of an agreement between slave and master with no strong binding power for the future.

<sup>1</sup> FpL., IX, c. 12. The slaughter of a ram may also be explained as the survival of a former sacrificial act, thus signifying the solemnity of the occasion. MAURER, *Bekehrung*, Vol. II, p. 199, note 44, was the first to call attention to this possible explanation.

<sup>2</sup> FpL., IX, c. 12.

<sup>3</sup> GpL., c. 61 and 66. To me this case looks like that of a runaway slave who had fled to the woods of another folkland, the mountains cutting off pursuit, where he succeeds in avoiding discovery, living as hunter or coalburner or what not, and maintaining his liberty by his very isolation. Here he may have cleared land and established an existence. Some of the homes on the very edge of the mountain ridge, which are seen from the Norwegian valleys, must originally have been built by some desperate individuals, thieves, outlaws indeed, who had fled "justice," and maintained themselves where they could be least molested. In this case freedom was slower in coming than to the slave who hid in cities, and who, when the year was over, was free. *William's Laws* (SCHMID), III, c. 16.

<sup>4</sup> GpL., c. 61.

<sup>5</sup> GpL., cc. 129, 270.

<sup>6</sup> GpL., c. 298.

Only when it assumed the character of a definite stipulation, accompanied by the necessary publicity, or when the whole community had been called upon to witness, and, so to speak, sanction the act, did it have binding force for all parties concerned.

When liberation by means of chart came to supersede the spoken word, the semi-private nature of the letter, as well as the possibility of stipulating exactly the limits of the freedom given, made this form the commonest in manumission to inferior rights, to *tabularius*, *chartularius*, etc. But these kinds are characteristic of Romanic, rather than Germanic, customs. In the North the reason for making a slave a *frjálsgjafi* instead of a *leysingr* was either the master's lack of desire to go further in liberality, or the failing of the slave to satisfy the master's demands. That the master was not always to be blamed for tardiness in yielding to the desires of the slave for freedom can easily be understood when it is seen how little the liberation fee after all could recompense the lord for loss of absolute property right.<sup>1</sup> It seems to be in recognition of how insufficient the liberation fee in many cases really was to the lord that the Norwegian provincial laws decreed that the slave who had already bought his freedom should, nevertheless, work a year for his master.<sup>2</sup> Just as there were reasons why a liberation which was complete should also be gratuitous, so there were reasons why a manumission which was gratuitous should be limited in nature. An instance is found in the liberation according to Swedish laws when the lord give a slave (*annöþugher*) freedom, but remained responsible for him in every way, thus leaving his position otherwise no better than it was before.<sup>3</sup> And here we meet those stages of conditional

<sup>1</sup> In answer to the question why the liberation fee was so small, it must be pointed out that, inasmuch as money was exceedingly scarce (the fact of its having a value of 10 : 1 of what it has today points to this), six aurar in weighed and pure silver was a sum of great magnitude to the slave and a not unwelcome increase to the funds of the lord. At a time when it must be supposed that large fines were usually paid in kind, in woven goods, or in cattle (GþL., c. 223), the ready money brought together by the slave or the freedman had a worth beyond its actual value, and was not altogether undeserving of its name of liberation fee. Besides, this fee was not, and could not, be a compensation for future service, but for alimentation in the past, which the lord looked upon as an outlay that he did not wish entirely thrown away. This alimentation the freedman settled on land might henceforth furnish himself, the produce yielded paid for the land, and the two items of expenditure were thus made to balance more evenly.

<sup>2</sup> GþL., c. 61.

<sup>3</sup> O. G. Ærfb., 20. PAPPENHEIN, p. 41, translated under note 2, p. 234.

freedom which came earliest and lasted longest, a course of gradual and painfully restricted improvement.

The best representative of the earliest forms of liberation, and the lowest stage of freedom is the freedman just mentioned, whose position was not much better than that of a slave until he was introduced into a family. Indeed, he appears so distinctly typical that from the point of view of this lowest type it seems worth while to consider such apparently different cases as that of the Langobardian *aldius* and the already-mentioned Norwegian *frjálsgjafi*.

The Langobardian *aldius* was liberated apparently without any formalities whatsoever, he was attached to the soil, he could not leave the lord's domain without drawing down upon himself punishment, as did the slave. The relation between the lord and the *aldius* was regulated, the patron gave the freedman protection, and the freedman owed him duties. The *aldius* could have property, but he could not dispose of it, the patron was responsible for all his acts; for satisfaction the law turned to the lord, not to the freedman. In the eyes of the law the *aldius* was but an instrument in the hand of the free. In all these particulars the difference between the slave and the *aldius* is almost nil. The *aldius* could have a family, but had no right to marry without his lord's consent. He, however, enjoyed the protection of the law to a certain extent, since he was regarded as belonging to a particular class instead of being a nondescript and part of an inventory.<sup>1</sup>

A little better than the *aldius*, but supplementing our idea of his state quite wonderfully, was the Norwegian *frjálsgjafi*, who was as yet free only in an informal way, without the payment of fee, and also without the liberation beer.<sup>2</sup> The law looked upon him as in debt to the lord for the liberation fee, and allowed the latter without fine to force him to pay even with blows.<sup>3</sup> Very likely the lord settled this freedman on land, for how was he otherwise to maintain himself?

<sup>1</sup> *Roth.*, cc. 258, 235, 216, 219. *Grimvald* c. 1. *Lintpr.* cc. 68, 139, 143.

<sup>2</sup> He had no free disposition of what he possessed, or at least only to a trifling amount (one örtug); (compare GUÉRARD, Vol. I, p. 306, note 12, where in the thirteenth century serfs could not bequeath to a value of more than 5 sous). *GpL.*, c. 56. He could not marry without his lord's consent. *GpL.*, c. 63. He had only limited right to move about. Neither could he settle where he pleased. If he ran away he became a slave. *GpL.*, cc. 61, 67. His children could not inherit from him nor he from them, they belonged to the lord's household, and he was himself subject to the mundium of the lord. *GpL.*, cc. 65, 296. *FpL.*, cc. 10, 13.

<sup>3</sup> *GpL.*, c. 61.

Thus the dependent relation became further established. For this land he paid some sort of tribute, and was otherwise left to shift for himself. Furthermore, he was to help to support the lord in case the latter became destitute.<sup>1</sup> In the same way the destitute freedman could call upon the lord for assistance. The lord was his natural mainstay, and obliged to support him and his family; but this duty on the part of the lord is by no means unlimited; he could under circumstances relieve himself of the whole burden by making the freedman and his "gang" starve to death till only one was left (*grafgangsmen*).<sup>2</sup> Those who had complaint against the freedman or a demand for compensation from him turned to the lord for satisfaction.<sup>3</sup>

The moral attitude of the *frjálsgjafi* towards the liberator the laws characterize by the name *þyrmslir*, which means respectful behavior, and they even go so far as to specify how this respectful behavior was to be understood. The freedman was not to attempt to rob his master of property nor to sit in judgment against him, never swell the host of his enemies, nor bear any witness against him, nor be on the side of the lord's betters unless permitted to do so — regulations of an almost feudal character which throw strange light upon the possibilities after all open to such an (supposedly) inferior being. If the freedman committed any of these disloyal acts he was to be reduced to his former place and have all his property forfeited.<sup>4</sup>

<sup>1</sup>GpL., c. 129. Compare Maurer's explanation of what is meant by "fostrlaun" on p. 68 of his treatise.

<sup>2</sup>"The barbarous custom of an almost forgotten past." A grave was to be provided for them in the churchyard, and there they were to be put to die; the lord, however, was to take out of the grave the survivor and bring him up. GpL., c. 63. See the whole complicated matter in MAURER, pp. 69-74.

<sup>3</sup>*Willa*, p. 215.

<sup>4</sup>GpL., c. 66. "The freedman shall show consideration (have *þyrmslir*) towards his lord. He shall not plot for the purpose of depriving him of his property nor of his life; nor shall he be against him in the court unless he has his own case to defend. Then he shall uphold it against him as against other men, and not attempt to measure himself with him in words, and wield neither sword nor spear (point and edge) against him, and not swell the host of his enemies, and not bear witness against him, or aid those who are mightier than he (the lord), unless he (the freedman) has his permission, and not join a court hostile to him. And if he does any of these things he shall go back into the place he was in before and redeem himself from it with the value of it, and he shall also have lost his property. Two shall fulfill these obligations, father and son, against the other two (father and son on the other side). If his (the freedman's) son commits any such fault he shall pay the lord the value of it, the same as did his father." The attitude of the vassal towards his seigneur is here forestalled and the position of the *frjálsgjafi* is not very different either from what little we know about the Roman client of earlier times.



It was possible, however, for the frjálsgjafi to buy himself free from the þyrmslir, and thus be like the freedman of higher order, the leysingr. Yet the leysingr was not relieved from some obligation towards his patron, although he had bought off the most oppressive. He had to expect to aid the lord in an emergency, to support him financially, if he was in need. But he was called *vánarman* rather than þyrmslirman, i. e., his duties were secondary rather than primary, he was called upon only in case of utmost necessity, was not at the beck and call of the patron. He had the right to marry,<sup>1</sup> to come and go without the permission of the lord, and to dispose of his property, and his children could inherit it.<sup>2</sup> He, too, must have been settled on land<sup>3</sup> as a means of maintaining himself, unless he already possessed land of his own, which, of course, was not impossible.<sup>4</sup>

The king, the nation, or the private individual must have endowed the freedman with property at the liberation to make him able to take care of himself. Public land must have been given or opportunity opened up to him of getting land by clearing it. That in case of settlement of a new country the freedman and even the slave had a handsome opportunity if not altogether a golden one, seems indicated by the Icelandic sagas.<sup>5</sup> As such settler the freedman of higher grade must have enjoyed certain privileges, have been a tenant in fact, whose rent and dues were not heavy. But if one remembers the general situation of the tenant in a country with such small agricultural resources as exist even today in Norway and the possibility for only sheep culture in Iceland, the chances for any sudden or great economic independence on the part even of the best situated freedmen, seems rather poor; although the sagas give instances such as referred to in the notes.

Between the northern frjálsgjafi and the leysingr in regard to rights and well-being stands the *litus* of continental origin who seems sometimes to have been under a severer tutelage of the lord than might be expected in a freedman liberated to the degree of litus. There must have been some difference between the litus of early Germanic origin

<sup>1</sup> GpL., cc. 61; 62.

<sup>2</sup> GpL., c. 66. The lord inherits from the freedman of higher grade in the ninth degree, while in the tenth the king is the heir. GpL., c. 106. FpL. IX, c. 11. MAURER, pp. 55-56.

<sup>3</sup> *Eyrbyggja Saga*, c. 32, 2.

<sup>4</sup> GpL., c. 91.

<sup>5</sup> *Laxdælasaga*, cc. XXV, 4; VI, 8-9. *Eyrbyggja Saga*, cc. 8; 4, 30; 2, 31; 5.

and the one which figures later. Where the old *litus* remained in existence, as he did among the Saxons and the Frisians, he seems accorded very few rights indeed, his greatest privilege being his family relations and his distinction as belonging to a class. But the *litus* is best studied in connection with the development of serfdom.

The liberation by means of chart instead of by verbal grant (the chart not being revocable, as was the verbal manumission), which became so general during the centuries following the eighth and ninth, helped to create a mass of half-free who existed for nothing so much as to recruit the dwindling *coloni* (*tributarii*) and *liti*,<sup>1</sup> although they bear other names. These had as yet no special class-privileges, the nature of their freedom was indicated in the chart, and according to this they ranked higher or lower within the general sphere of their liberties (*tabularius*, *chartularius*). Their position is also largely determined by the position of the patron, whether they are *homines regii* or *ecclesiastici*. The liberated body servant or unfree (half-free) soldier belonged to their rank. They presented a new stage in the development of the unfree, that of *serfdom*, in all its numerous shadings and rubrics of dependence and semi-liberty.

The freedman of whatever kind acquired what he had not before—a legally fixed value.<sup>2</sup> For the *aldius* it was one-third<sup>3</sup> of that of a freeman, for the *litus* it was one-half.<sup>4</sup> The liberated Swedish *annöbughter* who was not yet introduced into the family, had only the value of the slave, the *frjálsgjafi* and the *leysingr* generally the same (according to the laws one-half [GþL.] or one-third [FþL.] of a free man).

Among the freedmen not yet mentioned, the Langobardian full-free but not *dmund*<sup>5</sup> (his own master) and the Frankish (*Chamav.*) liberated *per hantradem*<sup>6</sup> who was free but bound in obedience to a patron, have much in common with the *leysingr*, and even more with the northern freedman of nondescript character who was liberated *skattalaust*

<sup>1</sup> A tendency which, on the continent, liberation had. *Lex Ribuar.* tit. LXII, 1.

<sup>2</sup> GþL., cc. 91. 198. 200. *Lex Sal.* tit. XLII. 4. (*litus*).

<sup>3</sup> Or a trifle more; 60 sol. vs. 150 (or more). *Liutpr.* c. 62.

<sup>4</sup> 100 sol. *Lex Sal.* tit. XLII. 4. *Lex Fris.* tit. I. 4, 7, 10.

<sup>5</sup> *Roth* c. 224.

<sup>6</sup> *Lex Franc. Cham.* c. 11 and 12. "Hantradem" appears to me merely an awkward translation of *manumissio*, = *hant* (*manu*), *tradam* (*mittam*), as if it were a formula which would correspond with *se ille foris de eo miserit (sua manu)*. The twelve "compurgators" are necessary as witnesses, the owner manumits himself the twelfth person in the party.

*oc skulda* but under *þyrmslir*. In regard to the Frankish slave liberated *per hantradem*, the influence of the church upon national customs is strangely evident. The liberation (according to Sohm<sup>1</sup>) consisted in an oath taken by twelve free men (among them the liberator of the slave) in the church while holding each others' hands (*hantradem*=*handreichung*), certifying that the slave henceforth was to be looked upon as free. In this case the proper place for such liberation had been changed from the assembly of the people (*malloberg*) to the church, but it is not impossible that the liberty of the freedman suffered in consequence.

In the North\* one of the most instructive phases of this entire social movement is the slowness of upward progress, even after freedom or partial freedom had been obtained. Combined political and economic considerations favored holding the freedman down. Brilliant exceptions could not change the general attitude, although they created valuable precedents. Besides, the treatment of the slave as a man, and the making him a man legally and socially, called forth new feelings of aversion among the free; the coarser differences were done away with, the finer remained and erected a barrier which for generations held the freedman outside the pale of perfect freedom. To the free population the freedman was unwelcome. He was not of their kith and kin, he had risen from the lowest of lives; he was an outsider who had no room in their midst; naturally the more insignificant he appeared, the longer he remained outside, the sooner he could hope for recognition. Should he attempt to force himself upon them, and there were no special reasons for making an exception, he would not be tolerated at all. To the master, the fee received could not compensate for the loss of a permanent laborer, and the slave could thus not be said to have really *paid* for his freedom. Freedom was, after all, more in the nature of a gift than of a purchase, and was, also, most of

<sup>1</sup> SOHM, *Reichs- und Gerichtsverfassung*, p. 573 ff.

\*In the South (on the continent) the freedmen were far more lost among the mass of half-free servants and laborers needed to maintain the large centralized estates. As the decades went by a large number of them found their proper place without very great friction; the development of feudal tenure and military service gave them, in the end, economic independence and social position, and they ranked among the faithful adherents of an all powerful aristocracy, until they had risen so high as actually to form a lesser but serviceable nobility. There is another side to the career of the freed slave which is chronicled in the dreary sameness of serfdom, but this, too, is fused with the existence of the free, in this case the unfortunate, reduced free.

the time called by that name. Accordingly the master, in return for his liberal behavior, reserves for himself some definite consideration. Prolonged dependence, therefore, lasting till time had leveled differences, dues had all been paid, and a tradition created in behalf of the freedman, was the only natural solution of the problem.

In spite of the regulations of the laws, it must even be doubted whether in general—the *liti* and *aldii* excepted—the grades of the conditionally liberated had any very definite outlines; whether from the *annöbughar*, who was given freedom for the salvation of soul, but who was otherwise not better than a slave, to the *leysingr*, over whom the lord exercised only a nominal *mundium*, (though his freedom could not be established for twenty years), whether in each and every case the greatest difficulty for the freedman did not, after all, lie in the indefiniteness of the position, which it was too often in the arbitrary power of the free, to change for better or for worse.<sup>1</sup> Where was his unprejudiced protector to be found, outside of the king and the church? The lord still remained the patron until the liberated, by successive generations, had established a state of freedom, or had founded a family, or acquired a clearly recognized position. It seems as if, owing to these circumstances, the liberation by chart, which distinctly determined the nature of the freedom given, should have been much preferred and popular for this same reason. For this practical device, working toward order and fairness, the church is to be thanked.

How clearly the popular opinion, and accordingly the laws, distinguished between the highest among the conditionally liberated and the really free is best seen in the northern laws, but it also appears in the conditions on the continent, particularly in the marriage relations.<sup>2</sup> In the South where many conditions met, the power of the king and the church, and not the least the increasing differentiation of society helped to make the difference less oppressive. In the North, however, where society was more of one stamp and prejudices wore off but slowly, the liberated slave had to travel a long and torturous path

<sup>1</sup> See the persistent efforts of Thorolf Haltfoot to harm and finally do away with Ulfar, the freedman (of another chief), because Ulfar happens to advise Thorolf wrong in some small matter. *Eyrbyggja Saga*. cc. 8, 30-2.

<sup>2</sup> The marriage between slave and free, liberated and free and mixed relations, likewise the more or less fluctuating rights, or loss of rights, resulting from this, only further confirm this view of the matter. The question has been so extensively treated by Koehne in his contribution (*Geschlechtsverbindungen der Unfreien*) to GIERKE'S *Untersuchungen* that I need only refer to this book.

before he could call himself an equal of the free. In Norse law it took three generations within the free to create a family in the sense of a solitary unit of relations who protected and supported. The manumitted slave who had not paid his liberation fee, or whose freedom had not been publicly announced, could only in the fifth generation acquire the rights and freedom of a leysingr, the one who completed all necessary formalities. The leysingr again, under normal circumstances, could only become fully free in the fifth generation,<sup>1</sup> while only the eighth generation could speak of belonging to a free family. Better guarded from the intrusion of disagreeable elements the society of free could never be; and these regulations so anxiously preserved in northern laws were perhaps once common to all Germanic nations.

There was, however, one way of entering a free family and enjoying its privileges and protection at once. This, as already indicated, consisted in the freedman being introduced into a family of free. In fact the preservation of freedom for the liberated was, at least in some instances in the earliest time, dependent upon this introduction.<sup>2</sup> Without this the freedman had no guarantee that the liberty granted would be more than a passing experience. That fact may have a direct bearing on the condition of the above mentioned *annöþugher*. This method of final liberation seems to be preserved only in the northern laws, though it may once have existed in Germanic society elsewhere. That this formal introduction was by no means a frequent occurrence, but was most likely reserved for exceptional cases, such as the final legitimization of a slaveborn child (of free father), is evident from passages in Norse law, where the ceremony appears in its most elaborate form. In other words, we may suppose that the last and highest grade of liberation, in which liberty was conferred absolutely and involved privileges of membership in a free family, was confined to the occasional freeing of such illegitimate slaveborn children. Historical evidences show that all through the history of Germanic life—the family of freeborn being the nucleus and mainstay of society—the child born of slave mother had no place within its precincts. Its slavebirth made it unfit for association with free members. On the other side, the fact of its semi-free parentage offered certain

<sup>1</sup> Although his condition improved from the second generation to remain thus stationary for two generations more, forming the "family" (*att*) of the leysingr. Vide MAURER, pp. 58–66.

<sup>2</sup> *Amira* I, p. 541 (where the necessary references).

redeeming possibilities which the father or the family were at liberty to make use of, in fact, which they were sometimes obliged to take into account. If, for instance, the mother was free and the father slave, she had the power to make her child her own equal if she wished. In certain laws such a child was, by virtue of its birth, free. Not so, however, if the mother was slave and the father free. The father might make his child his equal only if he liberated it before it was three years old.<sup>1</sup> The child then grew up as its father's equal, possessing liberty without any restrictions of independence. But even such a child<sup>2</sup> had not *all* the rights accorded to his brothers. He inherited only when some other link in the chain was missing, and could receive gifts from his father only as a matter of condescension after the consent of the nearest heir had been gained. Full rights and perfect equality were possible to him only if the father or the next kin decided to perform in his behalf the act of introduction.

This act was of peculiar and ancient type. It took place in connection with a social gathering and required the slaughtering of an ox and the brewing of a sufficient quantity of malt into beer. From the skin on the right forefoot of the ox was to be made a shoe. The formal introduction and legitimation consisted in the father (or whosoever else was called upon to perform the act) stepping into the shoe, after him the one who was to be introduced, then the nearest heir, and finally the rest of the family, each pronouncing at the same time the appropriate formula which indicated the particular meaning of the ceremony.

As in the liberation of the ordinary slave this legitimation and admittance into the family was also to be made public during twenty successive years, when the person thus introduced could inherit, and with the inheritance could assume the full publicity of his membership. The laws indicate, indeed, that any illegitimate child, free or unfree, could be thus benefited; but it appears as if the improvement was meant especially for the slaveborn rather than the freeborn who might be less in need of it. That not any slave (in general) who might have claim upon consideration would be thus honored, that the family would not open its bosom to welcome any but him who had a

<sup>1</sup> Gpl., c. 57.

<sup>2</sup> Gpl., c. 58. The change in age in this chapter suggests modification in demands and a later date, at least for this passage.

natural claim upon its protection, seems clear to one who has observed the exclusive character of the family among the northern nations.

But however forbidding towards the intruder, nowhere else does the family show its intention to better the condition of the slaveborn in such a marked and intimate way. This last step upward of the slave, to be sure, was largely a matter of chance, although a rather sublime, and more in keeping with the real needs of a friendless and exploited being than the gift of freedom on the field of battle or by clashing of arms in the Thing. And with this his final rehabilitation, we may fitly conclude our review of the vicissitudes in the career of the slave.

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## NOTES.

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### FISCAL RECIPROCITY.

THE recent Austro-Prussian convention on the subject of double taxation is an auspicious indication of international comity and concert in a field of action that has been too long neglected. It deserves to be signalized as affording an example worthy of imitation in its essential principles, if not in all of its details, by other states. The text of the convention, the legislation necessary to make it operative, and the ministerial report explaining its provisions, are all to be found in Schanz's *Finanz-Archiv* of recent issue (Vol. XVIII, p. 285).

There is much that is unsatisfactory in existing conditions of taxation, but it is doubtful whether there is any one thing that has given rise to such widespread irritation and annoyance as the particular evil known under the name of double taxation. The fiscal practice of most nations is, as regards this important detail of procedure, in defiance of every reasonable sentiment of fair dealing. Laws adapted to mediæval conditions continue to be administered to the present day, in disregard of the complicated changes that have been wrought in the texture of social and industrial relations by the ever-increasing mobility of modern life and capital. To tax its own citizens, wherever they might happen to be, and to tax all others, whenever they could be reached through their person, their property, or their business, is not an extravagant statement of the principle, to which the drift of economic changes, rather perhaps, than the spirit of governmental exploitation, has brought most modern states. But the evils complained of are none the less real or serious on this account. The negligence of government has always been one of the most potent causes of mischievous demoralization in the workings of the tax system.

The question, Where shall a man be taxed? is one that admits of comparatively easy solution, if it once be admitted that a man should be taxed but once on the same wealth or other evidences of tax-paying capacity, even though these bring him into contact with more than one tax jurisdiction. So far as the taxpayer is concerned, it is almost immaterial on what basis government proceeds—whether that of



citizenship, domicile, residence, *situs* of property, location of business, or a suitable combination of these—providing all states agree to act on the same basis. It is because states act on different principles, or, worse yet, act on no better one than the barbaric principle of grab, that the taxpayer is injured in purse and outraged in feeling, by being twice or thrice taxed. The difficulties of the problem are, therefore, mainly practical or political, of getting independent states to act on the principle of forbearance and relinquish their claims for revenue, wherever these are not founded in equity. As it is, the eager search for revenue has led many a state to push its claims where these had no foundation except in force.

It is this *régime* of force which the Austro-Prussian convention undertakes to terminate, and the *modus vivendi* it establishes is suggestive of the proper method of dealing with the problem. This method may be described as that of apportioning an individual's tax liability among competing jurisdictions, according to the geographical distribution of his personality or interest. It is a combination of the principles of political allegiance and economic interest. It follows in its main outlines the imperial German act of May 13, 1870, for doing away with double taxation among the several states of the empire. It attempts an equitable adjustment of the revenue claims of each state in cases where an individual, through his person or his property, comes into relations with both states.

Both Austria and Prussia levy general personal income taxes, and, in addition, separate special taxes on lands, houses, business, etc. As matters stood before the adoption of the recent treaty, the same person might be obliged to pay the income tax in both states; or, the income tax in one, and the special direct taxes on land, business, etc., in the other. Citizenship, domicile, or residence, rendered a person liable to the income tax in either state, irrespective of the action of the other. Cases were not of infrequent occurrence in which a person held citizenship in both states, or had residences in both, or a permanent residence in the one and a temporary one in the other; or, while a citizen of one state, lived in the other. In all these cases he was subject to the income tax in both Austria and Prussia.

Under the new arrangement the situation is much improved for all these classes. Domicile is made the chief test in the case of personal taxes, and location, in the case of property and business taxes. To be more explicit in giving the provisions of the treaty, Article I provides

that, subject to the exceptions named below, Prussian and Austrian subjects shall be liable to the payment of the direct state taxes only in the state where they have their domicile (*Wohnsitz*), in the absence of such, only in the state in which they reside (*sich aufhalten*.)

Persons having a place of residence in both states shall be subject to the payment of the direct state taxes only in the home state.

The chief exception to this rule is contained in Article II, which provides that land, houses, and business, as well as the income proceeding from these sources, shall be liable to direct taxation only in the state in which the lands and houses are located, or an establishment is maintained for the prosecution of the business. If establishments belonging to the same business are found in both states, the liability of the business to taxation in each jurisdiction shall be limited to the proportionate amount of business done by the local establishments.

So far so good. These rules—both the leading principle and the exceptions established to it—seem well designed to accomplish the object in view—the suppression of double taxation. They have been well tested in the experience of the German empire, and have the endorsement of a considerable body of competent scientific opinion. But the treaty, unfortunately, stops short in the application of its rules, when it reaches certain cases, where the differences in the tax systems of the two states apparently made it difficult to reach a common basis of action. Austria will continue, as heretofore, to collect special taxes on the income from mortgage investments and the public funds, by way of stoppage at the source. At the same time the treaty stipulates that the taxing power of Prussia with respect to income thus arising shall in nowise be abridged. Here, therefore, double taxation may take place. A Prussian taxable holding an Austrian mortgage or securities of the Austrian government, will be subject to the income tax in Prussia on the income from these investments, and, in addition to the special objective taxes levied by the government of Austria. The Prussian ministerial report admits that this is a hardship. But it apparently was impossible for the two governments to reach a more satisfactory agreement on this point at the present time, and it is left over for future adjustment.

Indeed, the present treaty is regarded in Prussia as being the first step toward a more comprehensive scheme of dealing with the questions of international taxation. The legislation enacted by the Landtag to give effect to the provisions of the convention with Austria, plainly

looks forward to the conclusion of treaties of similar scope with other European powers. The second section of the act of April 18, 1900, empowers the minister of finance to conclude conventions and issue regulations governing the liability to direct taxation of persons and property subject to the tax jurisdiction of more than one state, providing such arrangements are based on the principle of reciprocity.

All this is admirable and promising. It foreshadows the opening of a new field for the exercise of the diplomacy of reciprocity. We hear much these days of world-industry, world-commerce, world-markets. The business economy of the twentieth century is clearly destined to become increasingly international with each decade. Just as clearly do these changes in the economic organization of the modern world demand fiscal reciprocity as their correlate. Few conclusions are more strongly enforced by the history of industry and taxation than that good fiscal arrangements help, as bad ones certainly hinder, the natural growth of trade and industry. Much has been accomplished during the past century in the way of simplification and systemization of the machinery of taxation, but a vast deal still remains. And nowhere, it is to be remarked, are the conditions of the problem clearer, nowhere do they point more surely to the appropriate and effective solution, than in the region of double taxation by competing authorities. Prussia and Austria have showed the way. Will other countries have the wisdom to follow?

A. C. MILLER.

#### THE GERMAN TARIFF CONTROVERSY.<sup>1</sup>

THESE two controversial publications are selected, out of a deluge of polemical writings, as typical and authoritative summaries of the arguments and appeals to interest on both sides of the question which divides the German people. Whatever the Reichstag decides to do the controversy is sure to proceed, for its causes lie deep in the conflicting interests and beliefs of parties. Schäffle and Wagner represent with supreme ability views which are wide apart. Professor

<sup>1</sup> *Agra- und Industriestaat. Eine Auseinandersetzung mit den Nationalsozialen und mit Professor L. Brentano über die Kehrseite des Industriestaates, und zur Rechtfertigung agrarischen Zollschatzes.* By ADOLPH WAGNER. (Jena: Gustav Fischer, 1901.)

*Ein Votum gegen den neuesten Zolltarifentwurf.* By D. A. SCHÄFFLE. (Tübingen: H. Laupp, 1901.)

Wagner will not admit that it is a choice between the industrial and agrarian policy, but a question of equilibrium of interests. Hitherto the system of manufactures and commerce has been favored at the expense of agriculture; great fortunes have been made in cities and laborers have been attracted away from the country to degenerate in crowded dwellings. The time may come, at this rate, when Germany, exposed by war, will not be able to provide food for its people; or, beaten out of the world's market will have no outlet for its industries. The remedy is, high tariff on imported grain and meat, so that prices will rise, farming become profitable, capital and labor flow to rural pursuits, and equilibrium be established. Dr. Schaffle, the veteran economist and politician, concentrates his attack on the positions of Professor Wagner. He contends that the new tariff would, by raising prices of food, lower the conditions of life for all classes; that the Agrarians have no sufficient ground for hoping that the advance in prices will fill their pockets; that at best, only the richer landlords could gain any advantage, and that these gentlemen are not suffering but prosperous; that the farmers who are burdened with debt would not be relieved; that there are better and wiser measures for helping agriculture, such as organization of credit; that this measure, since it will increase the cost of living in cities, will arouse bitter partisan and class hostilities and lead to profound constitutional changes; and that, in the negotiation of commercial treaties, this tariff will erect unsurmountable obstacles and excite relentless retaliation.

Apparently the central point on which both writers agree is in a certain hate and dread of the vast industrial and commercial organizations which now characterize American economic life, and which they think to be as dangerous to America as to the peace and prosperity of European peoples, unless they can be brought under some sort of control by public opinion and social regulation.

C. R. HENDERSON.

#### AGRICULTURAL COMPETITION AND GERMAN POLICY.

Two pamphlets have come to hand devoted to the same problem, which has of late years been agitating the public mind in Germany, How to deal with foreign competition in agriculture? <sup>1</sup> The subject is

<sup>1</sup> *Die internationale landwirtschaftliche Konkurrenz: Ein kapitalistisches Problem.* By DR. GUSTAV RUHLAND. (Berlin: Ernst Hofmann & Co., 1901.)

*Die Industrialisierung der Landwirtschaft. Nebst einer Antwort auf die Frage: Brotsoll oder Handelsverträge.* By DR. NIEMETZKI. (Berlin: Ernst Hofmann & Co., 1901.)

treated however, by the writers, from diametrically opposite points of view. Professor Ruhland is at the same time director of the *Internationale Bureau zur Regulierung der Getreidepreise*, and editor of its monthly publication, where this pamphlet originally appeared in serial form. The pamphlet betrays on every page the animus of the German Agrarian party. His cardinal idea is "that an advancing civilization is incompatible with declining prices of cereals" (p. 4). But since the middle of the nineteenth century the competition of the United States and in the last decade of that century the competition of Argentina, have depressed the price of wheat in the European markets, and now the threatened competition of Mesopotamian farming is looming up as a new disturbing factor in the forward march of civilization — presumably, of German civilization.

To those who might incline to the belief that the opening up of new countries is a natural process, the author's answer is, that "it can be considered natural only in that sense in which all phenomena resulting in death are also something natural" (*ibid.*). To him, on the contrary, the growth of the "wild West," the colonization of the pampas of Argentina and the latest efforts to develop agriculture in Mesopotamia, are merely the fateful outcome of the unbridled license of scheming banking speculators. All great industrial crises of the last half century were at bottom agricultural crises, due in the last analysis to "misuse of depositors' money" (p. 5).

The great banks have in modern times become "the directing force of the enterprise of nations;" the sentence is quoted as a confession, as it were, coming from a director of the German bank (p. 32). The banks have manipulated the rate of interest with a view to directing European investment into the channels of foreign speculation. The rate of interest was artificially reduced at home, while high dividends from foreign railroad and other speculative schemes, financed by the banks, were held out as an attraction to the domestic investor. The public took the bait, railroads were built in the western states and in Argentina, new farming regions were opened up; overspeculation and overproduction of wheat followed; then came the inevitable crash. The inflated values were wiped out overnight, the banks were enabled to buy up the depreciated securities for a song, while billions of marks were irreparably lost to the credulous public. This scheming became possible through the unrestricted use of depositors' moneys for promoting purposes. The first bank of this new type, the

French Crédit Mobilier, was organized in 1852, by "the Portuguese Jews Isaac and Emile Péreire;" the former in his first business report to the stockholders, at the general meeting of 29th April, 1854, originated the view—later espoused by director v. Siemens, of the German Bank, "that the bank ought to direct capital seeking productive investment" (p. 48). This policy which has found expression in the practical workings of "promoting banks (*Gründerbanken*), threatens the foundations of our modern social order." That no objection to its "eminently anti-social effects" is raised by the Socialists, "is due perhaps to the fact that the organizers of the first of these banks, viz.: Isaac and Emile Péreire, came from the Saint-Simonist school of Socialism" (pp. 50-51). It may be mentioned by way of annotation, that the Socialist party in the Reichstag is outspoken in its opposition to the policy of the Agrarians.

Among the "anti-social effects" of speculative banking is the chronic price depression in the produce market. "How then can these agricultural price crises be prevented? Very generally speaking, by preventing the rush of large blocks of domestic capital for investment abroad" (p. 51). The author would have the issue of bank notes so regulated that they should serve only to satisfy the domestic demand; "every foreign demand for bank notes should, as far as possible, be discouraged." The same principle should be applied to bank deposits, which "must at last be reserved for the productive needs of the national middle class" (p. 52).

Today the German Bank forms the center of a network of syndicates controlling a capital of 2,400 million marks. If things are allowed to drift as they do, Professor Ruhland calculates that

By the end of the year 1968 all private property in Germany will have come under the domination of the banks, even if the value of that property should be equal to a massive gold plate, as large as the German Empire and 10 centimeters thick; this gives a value of 2,910,400 billion marks (p. 54).

Professor Ruhland believes that this would be a highly exaggerated estimate of the value of private property in Germany even for the year 1968.

To wrest this power from the banks, it is imperatively necessary to divert from them the flow of private deposits. For this purpose the great national banks, the German Imperial Bank, the Bank of England, and the Bank of France, ought to pay a small rate of interest on deposits, instead of accepting them, as they do, without interest. "If

the German Imperial Bank would allow a proper rate of interest [*eine angemessene Verzinsung*] on deposits, then by far the larger part of the 3.5 billions (now with private banks) would soon rapidly accumulate in its vaults" (p. 55). This money should then be loaned out to the co-operative credit associations of the middle class. To do this, would require a reorganization of the Imperial Bank, which is now governed by a board composed of the leading financiers of the country. This would have to be changed, and appointments to the board should be made from among "representatives of credit associations in city and country" (p. 57). This would necessitate the withdrawal of all outstanding stock of the Imperial Bank, after which "the new shares would have to be issued only to German associations." It is true that, under the law now in force, it could not be done before 1911, without infringing the vested rights of the stockholders. But as no right-minded man would hesitate to trespass upon private property, if necessary to prevent a railway accident, "so are likewise the rights of the actual shareholders of the Imperial Bank no obstacle to doing all that is necessary to prevent the threatened competition of Anatolia and Mesopotamia and to save the middle class in city and country" (p. 58).

There might be some room for doubt whether this legislation, though effective, perhaps, in keeping all bank deposits at home, could compel the investor to make his savings available for the use of the German *Junker*, so long as the stock exchange offers ample opportunities for investment, at least equally safe and profitable.

To save the public from the evils of speculation in stocks, the author would have the stock corporation law so amended as to convert the stock certificate into a species of negotiable paper, transferable by indorsement, with full liability of every indorser for depreciation.

It might be objected that, with such regulations no one would dream any longer of organizing his business into a stock company. So much the better! The extension of stock corporations, which has of late years become epidemic, is certainly not in the interests of a national middle-class policy (p. 60).

The identity of this "middle-class policy" with a "national" policy may not appear conclusive to the outsider. Its justification, according to Professor Ruhland, is in the fact that

The landlords of Central Europe have to compete against perennially—bankrupt management, not against normally cheaper cost of production. To demand of our landlords that they should reduce their cost of production so as to adapt themselves to the effects of foreign competition upon prices, is

tantamount to demanding that honest toil should learn to sell its wares as cheap as the swindler and bankrupt (Preface, p. 6).

This proposition is very ably contested by Dr. Njemetzki. German agriculture, he maintains, is merely following the course of development which older industrial nations, England and Belgium, have gone through before. Germany has now reached that stage when cultivation of breadstuffs becomes unprofitable. Industrial growth is accompanied by rising land values. The German farmer cannot successfully raise wheat for the market on land which ranges in value from 341 to 3,240 marks per hectar, while it can be grown in Argentina on good land which is valued at 60 marks per hectar.

It is more economical to import breadstuffs and to put the farm land under more intensive forms of cultivation. Truck, dairy, or poultry farming, and, generally, "industrial farming," as the author terms it, will pay better than extending the area of the cereal crops to barren soils as practiced by the landlords. The author reviews at length the progress accomplished along these lines by other countries, and lays especial stress upon the connection between the development of industrial farming and the growth of co-operation in agriculture.

The small farmer, with his limited resources, confronted with the problem of intensive agriculture, found a practical solution in co-operation. The co-operative movement among farmers, which scarcely had any existence before the last decade of the century just closed, has rapidly grown to be a factor in modern industrial development.

Co-operation in farming is at its highest in Denmark. There are in that country today 1,025 co-operative dairies, with an aggregate membership of 126,080; this represents a majority of all the dairies; taken in proportion to the population, it means one co-operator in every four householders; the ratio would appear still higher if the comparison were made with the farming population alone. In addition to that there are 25 co-operative slaughterhouses, with an aggregate membership of 54,000, the ratio to the population being one co-operator in every nine householders. The average membership is 123 for a co-operative dairy and 2,160 for a co-operative slaughterhouse. The economic effects of co-operation are seen in the fact that the population of Denmark, which had fallen from 2.5 millions in 1800 to barely one million in 1865, has since increased to 2.5 millions. Today Denmark has undivided control of the London market for



dairy products. There is hardly a dairy to be found which is not supplied with separators and refrigerating apparatus; most of them have put in electric plants. In their further efforts to extend their business, by turning out butter of the highest quality at the lowest cost and to secure the best price in the market, the co-operative societies have taken steps toward consolidation. A number of dairies ship their product in an unfinished state to the Danish seaport Ejsberg, where the last processes of butter-making are conducted on a large scale. Farming has thus undergone a differentiating process: the farm still continues to supply the milk, but the manufacture and sale of dairy products has developed into a separate industry, carried on by factory concerns. The present prosperity of Danish agriculture is, according to the author, due to co-operation, as much as to the application of scientific technical methods.

The progress of agricultural co-operation in the other Scandinavian countries, in Finland, and in Belgium, also deserves notice. In Ireland the first co-operative dairy was organized in 1889 with 50 members; on March 31, 1899, there were in all 374 co-operative agricultural associations, with an aggregate membership of 36,683. The growth of the co-operative movement among farmers in Germany is shown in the following table:

Year.								Number of co-operative associations.
1893	-	-	-	-	-	-	-	4,979
1894	-	-	-	-	-	-	-	6,031
1895	-	-	-	-	-	-	-	7,170
1896	-	-	-	-	-	-	-	8,986
1897	-	-	-	-	-	-	-	10,669
1898	-	-	-	-	-	-	-	11,839
1899	-	-	-	-	-	-	-	12,736
1900	-	-	-	-	-	-	-	13,636

The aggregate membership of all agricultural co-operative associations on March 31, 1900, numbered 576,140, or an average of 42 members to an association. In proportion to the population of Germany there was one co-operator in every sixteen householders, or, as estimated by the author, 10 per cent. of the entire farming population was connected with co-operative societies. One of the leading tendencies of these associations is the elimination of the middleman. The peasant carries his milk to his co-operative dairy, where it is made into butter and put directly on the market; the same practice is followed by the peasant co-operative flour mills and bakeries, vegetable selling agencies, etc.

The progress of agricultural co-operation in Germany has far out-run all other forms of co-operation, so that today the co-operative movement is there essentially a peasant movement. This is shown by the following figures :

Year.	Per cent. farming associations of all co-operative associations.									
1893	-	-	-	-	-	-	-	-	-	58
1894	-	-	-	-	-	-	-	-	-	64
1895	-	-	-	-	-	-	-	-	-	68
1896	-	-	-	-	-	-	-	-	-	72
1897	-	-	-	-	-	-	-	-	-	75
1898	-	-	-	-	-	-	-	-	-	76
1899	-	-	-	-	-	-	-	-	-	77
1900	-	-	-	-	-	-	-	-	-	80

While the great landlords have directed all their efforts toward the development of extensive agriculture, the progress of intensive agriculture in Germany must be credited chiefly to co-operative organization. The hope for further improvement is in the extension of the co-operative principle, as well as in the adoption of more intensive methods and the application of technical science to agriculture.

The author deprecates the "agrarian" policy, which encourages the growing of breadstuffs in Germany, as antiquated and designed to further the interests of a few landlords consisting of but 0.5 per cent. of the German people, at the expense of the remaining 99.5 per cent. Germany will gradually cease to export raw materials; she will become an importer of raw material and exporter of manufactured articles. A rational policy accordingly requires commercial treaties with those nations which can supply Germany with raw materials and offer a market for German manufactures, primarily with the United States and Russia. The production of raw materials will be gradually left to outlying sparsely-populated territories. To secure to herself a base of supply independent of the policies of foreign nations, Germany must build up a colonial empire. The colonial policies of nations were formerly dictated by dynastic considerations. That day is past. All politics have become industrial politics. The foreign policy of a modern nation is essentially the economic policy of the people. This is the substance of British imperialism. Germany, with her population increasing at the rate of 800,000 annually, must adopt the principles of British imperialism.

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## WHEAT GROWING IN ARGENTINE.

IN a recent publication on Agriculture and Colonization in Spanish America,<sup>1</sup> Professor Karl Kaerger has collected about fifty reports which he had sent in the years 1895 to 1900 to the Imperial German Foreign Office in his capacity as agricultural expert at the legations in Buenos Ayres and Mexico. In view of the importance which the Argentine republic has gained as a competitor of the United States on the world's wheat market in the last decade, an attempt will be made to discuss the content of those reports referring to wheat culture in Argentine,<sup>2</sup> and with the purpose of attracting attention to this admirable piece of work of Kaerger, the clearness and thoroughness of which deserve the warmest recommendation.

Kaerger's work begins with an estimate of the acreage which in Argentine might with advantage be devoted to the cultivation of wheat. He does not agree with Alois E. Fliess, who in his report, written for the Argentine government (*La Produccion Agricola y Ganadera de la República Argentina en el año 1891*, Buenos Aires, 1893), estimates it as high as 240,000,000 acres,<sup>3</sup> but believes it to be 150,000,000 acres, a figure which he reduces in a report written after a longer sojourn in the country to 120,000,000.

<sup>1</sup>KARL KAERGER, *Landwirtschaft und Kolonisation im Spanischen Amerika* (Leipzig: Duncker & Humblot, 1901). Two vols. 8vo, pp. 939 and 743. First volume, *Die La Plata-Staaten*; second volume *Die südamerikanischen Weststaaten und Mexiko*.

<sup>2</sup>Five reports on *Der Ackerbau in den argentinischen Provinzen Santa Fé und Córdoba* (Vol. I, pp. 1-221), dated between December 31, 1895, and April 25, 1896; one report, *Ueber den vermutlichen Umfang der argentinischen Weizensone, sowie über den Ackerbau in der Provinz Entre Rios* (Vol. I, pp. 408-438), dated March 8, 1897; four reports on *Der Ackerbau in der Provinz Buenos Aires* (Vol. I, pp. 438-551), dated between May 17 and August 30, 1897; one report, *Ergebnisse des Census: III. Der Ackerbau* (Vol. I, pp. 887-926), dated May 20, 1899.

<sup>3</sup>In the following pages all the foreign coins, weights and measures quoted by Kaerger and others will be given in American equivalents according to the following basis:

1 gold peso	= \$0.9648	1 kg.	= 2.2046 pounds
1 mark	= \$0.238	1 quintal	} = 220.46 pounds
1 £	= \$4.8665	1 fanega	
1 ha.	= 2.471 acres	1 dz.	} = 2204.6 pounds
1 Cuadra	= 4.1685 acres	1 metric on	
1 hl.	= 2.8375 bushels	1 pood	= 36.113 pounds
1 Winchester bushel	= 0.9694 bushels	1 cm.	= 0.39 inches
1 legua	= 3.22864 miles	1 km.	= 0.62137 miles
1 qkm.	= 0.38611 sq. miles		

The area cultivated with wheat in 1880 amounted to about 300,000 acres.<sup>1</sup> On the authority of Fliess, Kaerger gives as the actual wheat acreage in 1891 3,000,000 acres, while the census of 1888 reported about 2,000,000, and the census of 1895 about 5,000,000.<sup>2</sup> He believes that in 1897 it was not much higher, and that since then it has also by no means increased as much as it did before 1895.<sup>3</sup> It may be noted that Minnesota alone had from 1898 to 1900 also a wheat acreage of 5,000,000, the same as Germany, while the United States had in the last decade a wheat area of about 40,000,000 acres, which is somewhat larger than that cultivated in European Russia with wheat, and about eight times as large as that of Argentine in 1895, but only about one-third of what, according to Kaerger, might in Argentine be cultivated with wheat.

Up to the present time the cultivation of wheat in Argentine has been limited almost entirely to a few districts. The total area of the principal wheat producing provinces and their number of acres culti-

<sup>1</sup>Cf. REPÚBLICA ARGENTINA, *Boletín de Agricultura y Ganadería con las Publicaciones y Resoluciones oficiales del Ministerio de Agricultura*, Año I, núm. 12. July 11, 1901, p. 44.

<sup>2</sup>In his pamphlet, *Wheat Growing in the Argentine Republic* (Liverpool, 1895), William Goodwin makes (pp. 57 ff.) the following estimates of the acreage devoted to wheat culture: 1890, 2,700,000 acres; 1891, 3,300,000; 1892, 4,000,000; 1893, 4,600,000; 1894, 5,000,000. He adds. "The land actually under wheat in 1894 was estimated by government returns at 7,500,000 acres, but probably the foregoing estimate of 5,000,000 acres is a safer estimate."

<sup>3</sup>In an additional note Kaerger quotes as an estimate made for 1898-99 by the Argentine Department of Agriculture a wheat area for the four principal wheat producing provinces of only 3,662,650 acres. This figure, however, can only refer to a part of the acreage. I find in a report of the same department for the same year an estimate of 6,163,980 acres. (Ministerio de Agricultura de la República Argentina, *Cosecha del año 1898-1899. Datos estadísticos. Cuestiones de Economía Rural: Informe presentado por Emilio Lahitte*. Buenos Aires, 1899, p. 20.) Even this estimate does not include all the land cultivated in wheat. It was made prior to receiving the returns of 678 thrashers, "which, it is believed, will increase the total area to about 7,413,000 acres" (cf. *Monthly Bulletin of the Bureau of American Republics*, March, 1900, Vol. VIII, No. 3, p. 462 f.). Cf. for estimates for the years 1899-1900, 1900-1901, and 1901-1902, Ministerio de Agricultura de la República Argentina. *Datos estadísticos, cosecha 1899-1900*. Division de Estadística y Economía Rural, Buenos Aires, 1900, Table V; *Bureau of American Republics*, October, 1900, p. 738 f.; *idem.*, December, 1900, p. 1220; *idem.*, October, 1901, pp. 673 f.; and *The Review of the River Plate*, Saturday, August 24, 1901, p. 297, and November 9, 1901, p. 731.

vated with wheat, according to the census of 1895, will perhaps best be seen from the following table :

Provinces.	Total Area in Square Miles.	Total Wheat Area in Acres.
Santa Fé .....	50,930	2,547,349
Buenos Aires.....	117,810	907,959
Entre Rios .....	28,792	721,799
Córdoba .....	39,011	725,733
All others.....	877,623	161,927
Argentine Republic .....	1,114,166	5,064,767

The four provinces of Santa Fé, Entre Rios, Buenos Ayres, and Córdoba, with an area equal to 21.23 per cent. of the total area of the republic, contained 96.80 per cent. of the total wheat acreage ; Santa Fé alone, with an area of about  $4\frac{1}{2}$  per cent. of the total area, contained one-half of the acreage.

The greatest drawback of the wheat culture in Argentine is the locusts. They are especially destructive in Entre Rios. Here, but also somewhat in Buenos Ayres, great damage is also done by animals of various kinds. The abundance of organic matter in the soil of these two provinces seems to account for it. The main advantages which the Argentine farmer has over the farmer of northern Europe on account of his warm but not excessively hot climate, are the following : It enables him to carry on agricultural work during the entire year and to obtain two crops from the same soil ; it gives him an ampler time for the sowing, so that he can with the same number of hands cultivate a larger acreage, and further can diminish the risk of losing the entire crop by sowing at different times ; it enables him to keep the cattle during the entire year in the open air, and to also feed the draught animals permanently on the pasture ; it finally saves him the cost of heating his dwelling during the winter. Although the mean temperature in Buenos Ayres is lower than in the other three provinces, the farmer has here, on the whole, the same advantages over the European farmer as in the northern provinces. The great advantage of the Argentine soil over that of northern Europe is its greater fertility, its larger amount of potash and phosphorus. The fertility of the soil seems even to be larger in Entre Rios and also in Buenos Ayres than in Santa Fé and Córdoba. The wealth of the soil in mineral matter saves the Argentine farmer the trouble and cost of fertil-

izing, and allows him, whenever the economic conditions make it appear advisable, to cultivate the whole farm land every year with wheat without diminishing the yield, a practice which is, however, not adhered to in Buenos Ayres on account of the rankness of the soil. The great feature of the vegetation is that, with the exception of a number of spots in Córdoba and Entre Rios covered with bushes and trees, the soil on the whole is covered with low grasses, enabling the farmer to use the plow and keep cattle from the very beginning, and saving him the necessity of providing for roads. On the basis of Sering's studies (*Die landwirtschaftliche Konkurrenz Nordamerikas*, Leipzig, 1887), Kaerger states that while in the virgin forest regions of northwestern United States a regular cultivation of wheat is only possible from six to eight years after the cutting down of the woods, and that the farmer needs ten years in order to clear forty acres of virgin forest, the settler in Argentine can in the first year sow 160 acres of wheat without help. This comparison seems somewhat forced. Even if the above calculation is accepted as true for some exceptional cases, the acreage in the northwest, formerly consisting of virgin forests and now cultivated with wheat, is very small in comparison with the former prairie land which now forms the bulk of the northwestern wheat-belt.

Kaerger regards as one of the main factors in the low cost of the Argentine wheat production and its rapid progress, the fact that no stronger plow is necessary for the breaking up of the virgin land than for the working of the land already in cultivation. The only difference is that while the plowing of the old land can be done with two pair of oxen, the breaking of the new land requires three pair and a somewhat longer time. The depth of the furrow is generally on an average only four inches, with the exception of western Córdoba, where it is from six to eight inches, while in Germany it is seldom less than the latter, and in intensive cultivation from twelve to fourteen inches.<sup>1</sup> A double plow breaks about  $2\frac{1}{2}$  to 3 acres of new land per

<sup>1</sup> In the North American Pacific coast wheat region, with the exception of Oregon, where the method of preparing the land for the crops is more like the Eastern plan or that of the Middle West, the depth of the furrow is only about three inches. (Cf. United States Department of Agriculture, Division of Statistics, *Miscellaneous Series Bulletin No. 20, Wheat growing and general agricultural conditions in the Pacific coast region of the United States*, by EDWIN S. HOLMES, JR., Washington, 1901. Pp. 24, 28, 31).

day; it plows 4.2 acres of old land<sup>1</sup> against only  $1\frac{1}{4}$  acres in Germany. The quantity of the seed is generally from 33 to 42 pounds, in only a very few cases more than 50 pounds to the acre,<sup>2</sup> while it is in Germany from 140 to 200 pounds.<sup>3</sup> While, therefore, a man can sow in a day with the hand in Germany but  $7\frac{1}{2}$  acres, he can in Argentine, as a rule, cover from 15 to 21; in Western Córdoba and generally in Buenos Ayres from  $10\frac{1}{2}$  to  $12\frac{1}{2}$  acres. With a broad-cast wheat sower—which, however, is not generally used in Western Córdoba, and very little in Buenos Ayres—the Argentine farmer can sow about 33 to 42 acres, with the exception of Western Córdoba, where he will only succeed in covering from 25 to 30 per day. He harrows as a rule 15 to 21 acres per day, in Western Córdoba and Buenos Ayres only  $10\frac{1}{2}$  to  $12\frac{1}{2}$ , but in Germany not more than 3 acres. Harvesting is generally done with mowing machines. Headers, which are generally used in Santa Fé and Eastern Córdoba, and to a large extent in Western Córdoba, cut in the former districts from 25 to 42 acres per day; in the latter only 21, at the utmost 25 to 30. Binders, which, on account of the smaller size of the agricultural unit in Buenos Ayres, are almost exclusively used in this province, but which are common also in Entre Rios, and are likewise found in the other two provinces, mow on an average from  $12\frac{1}{2}$  to 21 acres. The thrashing is generally done with steam thrashing machines. Kaerger is of the opinion that if the California combined harvester and thrasher could be used here, the cost of production of wheat in Argentine would be enormously diminished. The reason for the smaller area covered per day in Western Córdoba, compared with its eastern district and Santa Fé, is the weakness of the draught animals, and in mowing in addition the inefficiency of the laborers, the effect of which is offset by the lower wages and lower prices of cattle in the former district. The larger amount of work done in Argentine compared with Germany, is due in plowing and harrowing to the stronger team, plowing besides being less thorough; in sowing to the smaller quantity of seed; in mowing to the use of machines

<sup>1</sup> In his chapter on "Wheat Farming in Santa Fé," Goodwin (*loc. cit.*, p. 18) says: "By working fifteen or sixteen hours one man can plough . . . four to five acres on broken land with a double plough."

<sup>2</sup> Goodwin seems to count one bushel per acre (*cf. loc. cit.*, p. 58).

<sup>3</sup> The average amount of wheat sown per acre in the Pacific coast region is estimated at seventy pounds (*cf. HOLMES, loc. cit.*, p. 21).

which Kaerger warmly recommends to his countrymen as an important factor in the superiority of the transoceanic competition. The yield per acre averages in Santa Fé and Córdoba from 635 to 795 pounds;<sup>2</sup> in Entre Rios about 900 pounds seems to be the average crop,<sup>3</sup> while in Buenos Ayres it is about from 950 to 1,070 pounds.<sup>3</sup> In a later report, however, Kaerger is inclined to consider 1,070 pounds, which he gives as the average crop for Germany, the poorest soil excluded,<sup>4</sup> as the average for the whole of Argentine.<sup>5</sup>

In the decade 1891 to 1900 the average annual output per acre was about the same as the one given for Santa Fé and Córdoba in Missouri (695 pounds), Kentucky (714), California (730), Nebraska (734), North Dakota, Indiana, and Kansas (763), Texas (764), Illinois (789), the average for the United States being at the higher limit (796). It was higher than in Santa Fé and Córdoba, but somewhat lower than in Entre Rios in Michigan (845), Minnesota (853), Wisconsin (871), Iowa (881). The output of Pennsylvania (925) exceeded the average of Entre Rios, while a similar high crop, as in Buenos Ayres, was

<sup>2</sup> Goodwin (*loc. cit.* p. 31) mentions that "it has been customary to consider that the average of Santa Fé is not over 10 to 11 bushels per acre (similar to United States average)." The yield per acre in 1899 and 1900 was estimated in Santa Fé at 688 and 691 pounds; in Córdoba 827 and 652 (calculated from *Cosecha del año 1898-99*, p. 20; 1899-1900, Table V).

<sup>3</sup> The yield per acre in 1899 and 1900 was estimated at 822 and 687 pounds (*cf. ibid.*).

<sup>3</sup> The yield per acre in 1899 and 1900 was estimated at 1,070 and 972 pounds (*cf. ibid.*).

<sup>4</sup> This figure for the yield per acre of wheat in Germany is somewhat too small. According to the estimates made in the corresponding years by the communal authorities, the yield per acre varied in the years 1885 to 1898 between 1,080 pounds (1889) and 1,490 pounds (1898). Later investigations by agricultural experts, however, have shown that the estimates of the communal authorities were from 10 to 15 per cent. too small. The recent official estimates give for the average of the years 1893 to 1899 an output of wheat per acre of 1,561 pounds, for 1900 an output of 1,668 pounds (calculated from *Statistisches Jahrbuch für das Deutsche Reich*, Vol. XVIII. Jahrgang, 1897, p. 31; Vol. XXI, Jahrgang, 1900, p. 22; Vol. XXII, Jahrgang, 1901, p. 18).

<sup>5</sup> Goodwin (*loc. cit.* p. 31) gives 13 bushels as the probable yield per acre for the entire country; in the *Summary of Commerce and Finance of the United States* for August, 1901, p. 510, the average yield per acre is given as 15 bushels. Goodwin, (pp. 58 f.) estimates the average yield per acre for the country at large, in the years 1890 to 1894, to 12, 11, 14.5, 18, 11.5 bushels. In the years 1899 and 1900 the yield of wheat per acre in the four leading provinces was estimated to 821 and 753 pounds per acre (calculated from *Cosecha del año 1898-99*, p. 20; 1899-1900, p. 22).



reached in Maryland (955), New York (1050), Oregon (1064), a yield similar also to that of Austria (983) and Hungary (1,102) in the six years 1894 to 1899. A higher output was even reached in the above decade in Washington (1,194), Colorado (1,248), and also in the above six years in France (1,134), and especially in the United Kingdom (1,873), while of the main wheat-producing states only South Dakota (624), and Virginia (625), and of foreign countries, for example, Russia (558) had a smaller output than the average acre in Santa Fé and Córdoba.<sup>1</sup>

Comparing the proportion of the crop to the seed in Santa Fé and Córdoba and in Germany, Kaerger finds that it was in the latter country much smaller, being only 6 to 8 times as large (according to the above quoted figures really only 5 to 7 times) against from 12 to 20 in the two Argentine provinces.<sup>2</sup>

The farmers in the provinces of Santa Fé and Córdoba are partly "medieros" who receive from the land-owner the land and the implements and have to deliver to him one-half of the crop; partly renters who work with their own implements and pay to the owner either a rent in gold or a percentage of the output; partly independent colonists. If we except a very few large land-owners cultivating their farms themselves, the size of the farms cultivated by these three classes is on the whole the same, being as a rule 417 acres. In the province of Entre Rios where besides the number of "medieros" and renters is small, the size of the average farm is 494 acres. In these three provinces about 20 per cent. of the farm is devoted to pasture. In Buenos Ayres the conditions are entirely different. The number of "medieros" and of colonists is very small, most of the soil belonging to large land-owners who rent it out in small tracts. On an average a renter gets

<sup>1</sup> Calculated from *Yearbook of the United States Department of Agriculture*, 1900. p. 768; one bushel being considered equal to 60 pounds. Cf. for the average yield in foreign countries also *Das Getreide im Weltverkehr*. Vom k. k. Ackerbauministerium vorbereitete Materialien für die Enquête über den börsenmässigen Terminhandel mit landwirtschaftlichen Producten, Vols. I and II.

<sup>2</sup> Charles Wiener (Ministère des Affaires Étrangères, Missions Commerciales, La République Argentine, Paris, 1899, p. 320) estimates the average crop in the province of Buenos Ayres at 13 times the amount of the seed. In the Pacific wheat region (California, Oregon, Washington, Idaho) the average yield per acre varied in the years 1882 to 1900 between 11.7 and 17.7 bushels (cf. *loc. cit.* p. 37). The average seed being estimated at 70 pounds per acre, the crop was thus from 10 to 16 times as large as the seed.

about 247 acres out of which he does not devote more than one-sixth to pasture.<sup>1</sup>

The old colonial population of Argentine emanating from the mixture of Spaniards and Indians cultivated the land only to a very limited extent. Up to the end of the sixties, Argentine had to import flour from Chili and North America. The change was only brought about by the immigration of Europeans. Even at present very few of the natives of Argentine are agriculturists, the land being cultivated almost exclusively by Europeans and their descendants, a large majority being Italians. The opinion prevailing in the cities of Argentine is that the Italian farmer is both extremely industrious and economical. Kaerger says that his observations in the field did not lead him to the same conclusion. The Italian is industrious only during the time of the sowing and harvesting; he does nothing during the rest of the year. He is economical only in so far that he avoids incurring more debts than he is sure he will be able to pay after the harvest; that he is extremely temperate in regard to the consumption of alcoholic beverages; and that he also eats very little meat. But the Italian living on a slice of bread and a few onions is only a legendary person. He praises the sensible economy of the Italians during the first years of their stay and their habit of conforming to the usual food of the country, the imitation of which virtues he warmly recommends to the German immigrants. But he disapproves of the Italian keeping up his habits after he has become wealthy and is inclined to characterize him as being during his whole life merely an "animate wheat producing machine." A peculiarity of the provinces of Entre Rios and Buenos Aires is the colonies of German Russians whom Kaerger classifies as extremely industrious and indefatigable, but as superstitious, little inclined to deviate from their traditional methods and especially distrustful. There are besides to be found in Santa Fé, Buenos Aires, and especially in Entre Rios colonies of Russian Jews established by Baron Hirsch which Kaerger describes as very successful, a fact which is the more noteworthy as at the start most of the immigrants had occupations not especially fitting them for country life.

Kaerger pays especial attention to the development of the railways in Argentine. He states that the costs of construction were given for 1893 as being \$53,000 per mile, about the same rate as in Canada,

<sup>1</sup> Cf. for the size and tenancy of the farms in Argentine Kaerger's analysis of the Argentine census of 1895 and especially for the farms cultivated in wheat in 1898-99, *Monthly Bulletin of the Bureau of American Republics*, March, 1900, pp. 462 ff.

against only \$29,000 for the South African lines constructed under similar favorable conditions as those in Argentine,<sup>1</sup> but against \$58,000 in the United States<sup>2</sup> and about \$100,000 in Germany.<sup>3</sup> But he thinks that the disproportion between the great length of the lines and the small total of persons and goods carried in Argentine together with the high cost of the coal, which is all imported,<sup>4</sup> would naturally lead the railways to fix higher rates than the American or German. This tendency however was checked by the severe competition between the lines. The great extent of the railways and their close network had this additional advantage to the farmer of extremely facilitating for him the sale of his products. Kaerger shows that in the entire province of Santa Fé there are 4.1 miles of railway per 100 square miles and in Córdoba 3.1 miles.<sup>5</sup> In the central wheat region of Santa Fé, which is at the same time the main wheat region of the entire country, and covers about 19,500 square miles, there are 1,550 miles of railway or 7.96 miles per 100 square miles, and in the main wheat region of Córdoba, covering about 21,600 square miles, nearly 700 miles of railway, or on an average 3.22 miles per 100 square miles. The number of stations in the same region of Santa Fé was 186, or on an average one station for somewhat more than 100 square miles. If this area is supposed to be a circle it would have a radius of 5.8 miles, this distance representing the theoretical average distance which each farmer would have to haul his wheat to the nearest railway station. In the wheat region of Córdoba, where the number of stations was 61, or on an average one station for about each 350 square miles, the corresponding radius is 10.6 miles. In 1895, in a selected part of northeastern Germany, likewise producing almost exclusively agricultural products and also

<sup>1</sup> In fact the capital per mile of line in Argentine varied in the years 1892 to 1899 between \$51,183 (1899) and \$53,511 (1894). (Calculated from *Estadística de los Ferrocarriles en Explotación Año 1895*, p. 32; 1897, p. 36; 1898, p. 39; 1899, pp. 45, 217.

<sup>2</sup> The total capital per mile of line in the United States varied in the decade 1890 to 1900 between \$59,610 (1895-96) and \$63,776 (1891-92). (Cf. *Interstate Commerce Commission, Thirteenth Annual Report, on the Statistics of Railways in the United States for the Year Ending June 30, 1900*, p. 53).

<sup>3</sup> The total capital invested per mile varied in the decade from 1889 to 1899 between \$95,900 (1889-90) and \$97,100 (1898-99) (calculated from *Statistisches Jahrbuch für das Deutsche Reich*, Vol. XXII. Jahrgang, 1901, p. 44).

<sup>4</sup> The average cost per metric ton of coal used by the railways in 1897 was \$6.85, in 1898 \$7.04, in 1899 \$6.79 (cf. *Estadística de los Ferrocarriles*, 1897, pp. 128 f.; 1898, pp. 130 f.; 1899, pp. 144 f.), or about three times as high as in the United States.

<sup>5</sup> The figure in Kaerger is given as 1.11 km. per 100 sqm, evidently a misprint for 1.91 km.

having in common with this part of Argentine a long water front, the radius was 3.6 miles. In an effort to eliminate the error arising from the fact that the farmer generally cannot haul his wheat in a straight line to the nearest railway station, Kaerger comes to the conclusion that in fact the farmer of the central wheat region of Sante Fé has to haul his wheat on an average 7.3 miles, in the wheat region of Córdoba 13.5 miles, in the selected part of Germany 4.5 miles.

He then discusses the freight rates for wheat on Argentine railways. He states that the companies charge varying rates according to the value of the paper money, and calculates the following table showing the rates in paper pesos for 1,000 kilograms of wheat, charged by seven companies in 1894 for different distances, the gold peso being equal to three and to four paper pesos :<sup>1</sup>

NAME OF ROAD.	300 PAPER PESOS = 100 GOLD PESOS.			400 PAPER PESOS = 100 GOLD PESOS.		
	100 km.	200 km.	300 km.	100 km.	200 km.	300 km.
Central Argentino.....	4	7	10	5.20	9.10	13
Buenos Aires y Rosario.....	4.65	8.45	12.25	5.88	10.68	15.48*
Provincia di Santa Fé.....	5.80	9.21	12.63	7.32	11.64	15.96
Oeste Santafecino.....	6.50	13	19.50	6.50	13.	19.50
Buenos Aires al Pacifico.....	4.50	7.20	9.90 <sup>3</sup>	5.75	9.20 <sup>4</sup>	12.65 <sup>5</sup>
Villa Maria a Rufino.....	3.96	6.12 <sup>6</sup>	8.28	5.06	7.82	10.58
Andino.....	2.25	4.50	6.75	2.25	4.50	6.75

These rates expressed in cents per net ton of wheat per mile were the following :

NAME OF ROAD.	300 PAPER PESOS = 100 GOLD PESOS.			400 PAPER PESOS = 100 GOLD PESOS.		
	62 miles.	124 miles.	186 miles.	62 miles.	124 miles.	186 miles.
Central Argentino.....	1.878	1.643	1.565	1.831	1.602	1.526
Buenos Aires y Rosario.....	2.186	1.985	1.918	2.071	1.880	1.817
Provincia di Santa Fé.....	2.723	2.169	1.978	2.578	2.053	1.873
Oeste Santafecino.....	3.052	3.052	3.052	2.289	2.289	2.289
Buenos Aires al Pacifico.....	2.113	1.690	1.549	2.025	1.620	1.485
Villa Maria a Rufino.....	1.859	1.437	1.290	1.782	1.377	1.242
Andino.....	1.056	1.056	1.056	0.792	0.792	0.792

<sup>1</sup> The average annual price of gold in 1894 was 357. (*Cf. Review of the River Plate*, Saturday, January 4, 1902, p. 191.)

<sup>2</sup> Kaerger erroneously gives 14.48.

<sup>4</sup> Kaerger erroneously gives 9.10.

<sup>3</sup> Kaerger erroneously gives 8.90.

<sup>5</sup> Kaerger erroneously gives 12.55.

<sup>6</sup> Given in Kaerger's table as 5.12 — evidently a misprint.

The rate per ton of wheat per mile charged by these railways varied then in 1893 at a value of the paper peso equal to one-third gold peso between 1.056 and 3.052 cents and at its value equal to one-fourth gold peso between 0.792 and 2.578 cents. Kaerger shows that the rates varied on the first three mentioned lines with an especially extended wheat traffic between 1.565 and 2.723 cents (paper at 300) and between 1.526 and 2.578 (paper at 400). He states that these rates were much higher than those charged in Germany, which according to his figures were per net ton per mile at a distance of 62 miles 1.216 cents, at a distance of 124 miles 0.973 cents, at a distance of 186 miles 0.900 cents. He further states that they were especially much higher than in the United States where 100 pounds of wheat were carried from Chicago to New York in January, 1890, for 25 cents and in July, 1890, for 22½ cents, which corresponds to a rate per ton per mile of 0.548 and 0.493 cents.<sup>1</sup> But he believes after all that the transportation is much more favorable for the agriculture of Argentine than for the North American; the wheat region of Argentine having the long water front which makes the distance to be sent by railway to the shipping port very much shorter than in North America. These water ways, the ocean, the Uruguay and the Paraná afford also the advantage of a large number of ports. He comes to the conclusion that the average rate of transportation for the wheat crop from Santa Fé and Buenos Ayres to the ocean amounts to \$2.40 per metric ton, from Cordoba to \$3.20 against about \$5 (1890) from Chicago to New York alone and to at least \$7.15 to \$8.30 for the average transportation from the local railway station to the ocean; that this disadvantage is by no means offset by the smaller distance from North America to Europe, the rate for the ton of wheat from New York to England being, it is true, only on an average \$2.40, but also in Argentine sometimes only \$2.85 and usually from \$3.55 to \$4.75; the railway and ocean freight rates together being thus for the North American wheat about \$9.50 to \$10.70 against \$6 to \$8 for the Argentine.

When, however, Kaerger says that the difference between the

<sup>1</sup> Like practically all other foreign writers comparing grain rates in the United States with those of other countries, Kaerger thus bases his conclusions upon the railway charges from Chicago to New York. This rate, however, being a competitive rate of the most intense kind, cannot be taken as an average grain rate for the United States, and as it is, moreover, a long-haul rate from a primary market to the ocean, it cannot be compared with the charges for the short distances which the Argentine wheat has to be carried directly from the local railway station to the shipping port.

freight rates from the United States and Argentine has largely contributed to the rise of the Argentine agriculture, as entirely benefiting the farmer, this conclusion seems somewhat hasty, as the freight rate is only one of the factors influencing the profit of the farmer. Kaerger, although not attempting to compare them for both countries, is quite aware of the importance of these other factors. In fact, he thoroughly discusses the methods of the grain export trade which is largely in German hands, the insufficient arrangements for the storing and cleaning of grain, and the grain inspection. He makes a very careful and elaborate investigation of the different costs of production of wheat in the various provinces for old and new land for the different systems of management, of tools employed, of monthly wages, of days of work during the month, of yield. He adds a detailed investigation of the costs of trade and of transportation of the wheat from the producer to Europe for the different rates of paper currency, and of the gross profit of the producer for the different prices of wheat on the European market, and by combining these results with those found for the costs of production of wheat under various conditions, he gives a lucid insight into the conditions under which wheat growing in Argentine is profitable and able to compete in German markets with German wheat.

	CENTS.	
	Per Acre.	Per Bushel of 60 Lbs.
Costs of 417 acres of land, at \$4.80 the acre, = \$2,000; interest at 8 per cent. (\$160) distributed among the 333 cultivated acres....	48.0	3.89
Costs of buildings, etc., \$166.67; interest at 8 per cent. (\$13.33), distributed as above...	4.0	0.32
Costs of implements and machinery \$866.67, annual depreciation at 10 per cent. (\$86.67)	26.0	2.11
Costs of draught cattle, \$366.67; depreciation 10 per cent. (\$36.67).....	11.0	0.89
40 to 53 pounds of seed (\$13.33 to \$20 per ton)	24.0 to 48.0	1.95 to 3.90
Plowing, sowing, harrowing.....	14.0 to 33.6	1.13 to 2.72
Mowing.....	33.6 to 100.0	2.72 to 8.11
Thrashing.....	58.2 to 156.7	4.72 to 12.71
Sacks (6 cents per 100 pounds).....	44.8	3.63
Insurance.....	16.8	1.36
Land tax.....	2.4	0.19
Wheat tax (1½ cents per 100 pounds).....	11.2	0.91
Total.....	2.94 to 502.5	23.83 to 40.74
In addition breaking of new land.....	12½ to 57	1.01 to 4.60
Total.....	\$3.065 to 5.595	24½ to 45½

It will perhaps be useful to compile Kaerger's results for at least one example for which may be taken a farmer of Santa Fé owning 417 acres, of which 80 per cent., or 333, are cultivated with wheat, who has all the work done by farm hands, to whom he pays \$10, or \$13½ per month, and during the harvest \$25, or \$33½ per month, whose board costs him \$5 per month at ordinary time, and \$8½ in harvest time, and who work twenty or twenty-five days per month, the yield per acre being 740 pounds, all valued in gold, the value of the paper being ⅓ of the gold (exactly, 1 paper peso = 33⅓ cents). The costs then vary according to the above conditions and the use of different tools, as shown in the table on preceding page.

This makes per metric ton on old land, \$8.75 to \$14.95; on new land, \$9.15 to \$16.65. Kaerger finds as an average for the metric ton on old land, \$12.27; on new land, \$13.33. This makes per bushel on old land, 33⅓ cents; on new land, 36.3 cents. In order to simplify the calculations three-fourths may be counted as old land and one-fourth as new land:

Total Cost of Production to the Farmer.	Per Metric Ton.	Per Bushel of 60 Lbs.
Total cost of production to the farmer.....	\$12.50	34.0
Cost of hauling the wheat to the railway station (7.3 miles).....	0.67	1.8
Commissions of the local dealer (including unloading and loading, etc.).....	0.50	1.4
Railway charges.....	2.50	6.8
Loading at the seaport.....	0.50	1.4
Ocean rates to Hamburg.....	5.00	13.6
Commission of the importer (10 per cent. of the price in Buenos Aires plus ocean rate, if the former is \$20).....	2.50	6.8
Total.....	\$24.17	65.8

At a price of \$25 per metric ton of wheat in Hamburg (68 cents per bushel), that is \$33.33 including the duty, at which, according to Kaerger, the German agriculturists could cover their costs of production, but in very favorable cases, the farmer in Argentine would get on his farm \$13.33 per ton and then still have a small net profit amounting to 83 cents per ton (2¼ cents per bushel), and \$93 for his entire wheat crop; at a price of \$33 (in Hamburg)—the average price of the Argentine wheat in the English market in the years 1896 to 1900—which would probably involve a similar increase in the price

at Buenos Ayres and increase the charges of the importer by about 80 cents, he would get \$20.53 per ton or \$8.03 over his expenses (21½ cents per bushel), and \$900 for his entire crop.

It will be interesting to compare with the above selected example an estimate recently published by a land company of Buenos Ayres owning land in the southern part of the province of Buenos Ayres. The portion of the article which bears on the subject reads as follows:

Estimated cost of growing wheat in Argentina 1900-1901, calculating at the produce of 1,500 kilos per cuadra (4 acres) [793.3 pounds per acre],\* which produce has been exceeded for the past two years in the south.

(On new well-tilled land 2,500 to 3,000 kilos is often produced.)

Expenses are made up on the current rate paid for such work by contract.

		United States Coin.	CENTS.	
			Per Acre.	Per Bushel of 60 Pounds.
Rent of 1¼ leagues (2,000 cuadras at \$4 per cuadra) [8,337 acres at 40.8 cents per acre]	\$ 8,000	\$3,400	51.3	3.86
Tillage, 1 league (1,600 cuadras) [6,670 acres], at \$6 per cuadra [61.2 cents per acre] (leaving ¼ league for cattle, etc.)...	9,600	4,080	61.2	4.63
Seed, 100 kilos per cuadra [53 pounds per acre] at \$65 [\$27.625] per ton.....	10,400	4,420	66.3	5.01
Cutting, stacking, etc., at \$1.20 per cuadra <sup>2</sup> [\$510 per ton].....	1,920 <sup>4</sup>	12,240	183.5	13.88
Expenses; peones, etc., at \$40 <sup>5</sup> per cuadra..	640	272	4.1	0.31
Thrashing and bagging at \$1 per 100 kilos [\$4.25 per ton].....	24,000	10,200	152.9	11.57
Cartage to rail, 2 to 3 leagues [6,457 to 9,686 miles] at \$0.40 per 100 kilos [\$1.70 per ton]	9,600	4,080	61.2	4.63
Railway freight, 255 kilometers [158.5 miles] at \$0.76 per 100 kilos [\$3.23 per ton].....	18,240	7,752	116.2	8.79
Bags, 31,200 at \$0.20 [8½ cents], each....	6,240	2,652	39.8	3.01
Guia tax, at \$0.09 per 100 kilos [38 cents per ton].....	2,160	918	13.8	1.04
Total cost.....	\$90,800 <sup>4</sup>	\$50,014	\$7.50	56.73
Produce, at 1,500 kilos per cuadra, 2,400 tons at \$65 [\$27.625] per ton, f. o. b., Dársena or Bahía Blanca.....	\$156,000	\$66,300	\$9.94	75.19
Yearly profit.....	\$65,200 <sup>4</sup>	\$16,284	\$2.44	18.46

<sup>1</sup> Cf. *Review of the River Plate*, Saturday, May 11, 1901, p. 29.

<sup>2</sup> In order to facilitate a comparison with the above given example, I have added the same equivalents for the measures, weights, and coins.

<sup>3</sup> Distributed among the 6,670 cultivated acres. <sup>5</sup> This should be \$0.40 per cuadra.

<sup>4</sup> In a letter dated May 17, 1901, and addressed to the editor of the *Review of the River Plate* (Power & Co.), state "that there is a clerical error in the item of cutting,



Argentine paper	-	-	-	-	-	-	\$ 1.00 = 1s. 9d. [= 42½ cents]
Cost per acre	-	-	-	-	-	-	11.35 = 19s. 10d. <sup>1</sup> [\$7.50]
Produce per acre	-	-	-	-	-	-	19.50 = 35s. 1d. [\$9.94]
Profit per acre	-	-	-	-	-	-	8.15 paper = 15s. 3½d. [\$2.44]
United States gold	-	-	-	-	-	-	1.00 = 4s. 2d.

## ON EIGHT YEARS' AVERAGE.

Cost per acre	-	-	-	-	-	-	\$3.77 = 15s. 9d. sterling
Produce per acre	-	-	-	-	-	-	5.93 = 24s. 11d. sterling
Profit per acre	-	-	-	-	-	-	2.16 gold = 9s 2½d. sterling

The rent of the lands as above may be considered very low. In the north of Buenos Ayres province good land near port is worth \$14 per cuadra, but the lands on which we base our calculation are in our hands to let at the price given, but are situated 250 kilometers from two seaports. Consequently there is heavier rail freight to pay.

The cost of tillage is estimated on the average of three or five years; breaking the land the first year would probably cost more than \$6. We know a case in which \$7 was paid this year by contract for this work.

Seed. The quantity used depends on the land, and some colonists may use more than we have given. In fact, estimates we have got varied from under 100 to over 200 kilos per cuadra.

Cutting, thrashing, etc., includes hired help (*peones*). A colonist with sufficient capital to furnish his own outfit would reduce this expenditure very materially. In fact, the cost of outfit would be repaid in two years, the plant remaining good with due care.

The produce of 1,500 kilos per cuadra is more than the average of the last season for the whole area grown, but we work on new land well tilled, and in the south of the province, which we consider the best for wheat growing, except there is more risk of late frosts, same as in the Canadian North-west territory, where the best wheats are produced in North America.

This estimate deserves special attention, as it gives on the whole, and for some items very considerably, higher costs of production than

stacking, etc., at \$1.20 per cuadra. This should be \$1.20 per 100 kilos, or \$28,800 instead of \$1,960 (should be \$1,920). This would raise the total cost from \$90,800 to \$117,680, and decrease the yearly profit from \$65,200 to \$38,320. The cost per acre would raise from \$11.35 = 19s. 10d. to \$14.71 = 25s. 9d., and the profit per acre decreases from \$8.15 = 15s. 3½d. to \$4.79 = 8s. 4½d., a profit similar to the one given for the eight years' average.

<sup>1</sup> In order to facilitate a comparison with the above given example, I have added the same equivalents for the measures, weights, and coins.

those in the example selected from Kaerger.<sup>1</sup> Entering into the details would necessitate a fuller discussion, first, of the difference in conditions in Santa Fé and Buenos Ayres, and, second, of the varying costs for a land-owner and a renter. It further would involve a treatment of the influence of the increase in the value of the paper money which occurred between the years in which the estimates were made, all questions which it would be impossible to treat within the scope of this article, but for the study of which Kaerger's work furnishes rich material.

ROBERT RENÉ KUCZYNSKI.

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<sup>1</sup> Cf. for other estimates: GOODWIN, *loc. cit.*, pp. 29-35 a. o.; WILLIAM BLYTH, *Farming in Argentine* (Dundee, 1896), pp. 59 f.; WIENER, *loc. cit.*, pp. 54 f. a. o.; *Consular Reports*, Vol. XLIX, No. 183, pp. 460-77 (WILLIS E. BAKER, *Transportation of Wheat in the Argentine Republic*); Ministerio de Agricultura de la República Argentina, *Membrias de las Direcciones de Comercio é Industrias, Tierras y Colonias, Agricultura y Ganaderia é Inmigracion* (Buenos Aires), 1899, p. 135.

## BOOK REVIEWS.

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*Grundriss der Allgemeinen Volkswirtschaftslehre.* Erster, grösserer Teil. Von GUSTAV SCHMOLLER. Leipzig: Dunker & Humblot, 1900. 8vo, pp. x + 482.

THE appearance of Professor Schmoller's *Grundriss* must be considered as an event of first rank in the history of the economic literature of the last year. Any book by the man who for a generation has been the leader of the historical school of economists and who, by his writings and lectures, has inspired and directed economic students from every important nation would command a wide circulation and careful consideration by economists. A general treatise by this man, however, excites an interest far beyond that of any other book which he could have written. Repeatedly has Professor Schmoller warned his students and contemporary co-workers against just such books as this. Early in his career he declared that at least a generation of intensive work in the field of economic history would be needed before a successful treatise on the subject of general economics could be written. The appearance of this book seems to indicate that in Professor Schmoller's opinion a sufficient amount of intensive, monographic work has been done to warrant a general treatise, and certainly no one was better fitted to undertake such a work, in accordance with the spirit, aims and views of the historical school, than the master himself.

Professor Schmoller's friends and followers in every part of the world have reason for gratification over the results of this undertaking so far as they have appeared in print. Every chapter of the volume before us reflects the great learning, the broad, historical spirit, the trained judgment, the moderation and fair-mindedness of its distinguished author as well as the thirteen years of hard work which the preface tells us he has put upon it. The book is happily free from the sorts of abstractions, generalizations and casuistry which brought the treatises of the so-called classical economists into disrepute. It is comprehensive in scope and descriptive rather than rationalistic in character. The facts and movements described are general, character-

istic and fundamental, and the method of their presentation is historical rather than logical. The style is compact, clear and polished, and indicates that the author has given much attention to forms of presentation and statement and careful revision to his manuscripts and proof sheets.

Professor Schmoller's conception of the scope of the science of economics and of its main subdivisions is substantially the same as that of most of his German contemporaries. Like them he abandons completely the traditional English arrangement of the subject-matter of the science under the heads of production, exchange, distribution and consumption, and recognizes only two main subdivisions, namely general and special political economy. Under his present plan the author contemplates the treatment of the first subdivision only, and the volume under review is the first part, containing the introduction and books I and II. The third and fourth books, which are to complete the treatise, are promised for the near future.

The introduction includes the treatment of three main topics, namely: the conception of political economy; the psychological, moral and legal foundation of a nation's economy and of society in general; and the historical development and methods of the science. The treatment of the second of these topics is much more comprehensive and full than that found in the treatises of Wagner, Cohn, or indeed in that of any other German economist. It includes much that is ordinarily to be found only in treatises on general sociology, ethics and psychology. The history of economic science contained in the third subdivision of the introduction is especially illuminating and satisfactory. It emphasizes the continuity in the development of the science, and the characteristic features of each period, and presents in an admirable manner its present condition and prospects. Every school and all the leading lights are given their proper place in this development, and the nature of the contribution of each is clearly presented and its value frankly and generously recognized.

Book I, entitled "Land, People and Technique as Mass-Phenomena and Elements of National Economy," also contains much that is not usually found even in German treatises on Economics. In its four subdivisions are treated respectively: national economy in its dependence upon external nature; the races and nations; the population, its natural classification and movement; and the development of technique in its economic significance. Ethnology, anthropology,

geography, meteorology, history and general sociology contribute largely to the contents of this book. The reader marvels at the extent of the author's knowledge of the literature and subject-matter of these sciences, and is filled with admiration at the manner in which he has marshaled the enormous volume of diverse facts and grasped and portrayed their economic significance. Rarely do his statements impress one as dogmatic or pedantic. They inspire confidence by their moderation, perspicuity and appropriateness to the facts upon which they are based. This book lays a broad foundation for the main body of the structure which is to be built up in the two following subdivisions.

Book II is entitled "The Social Constitution of the National Economy, its most Important Organs and its Chief Causes." In its seven subdivisions are treated respectively: the family economy; city and territorial economy; state economy; the social and economic division of labor; the nature of property and the fundamental characteristics of its various forms; the formation of social classes; and the development of forms of business undertaking and enterprise. While not a treatise on economic history, this book presents in a broad and comprehensive way the evolution of industrial society, and explains and characterizes each stage in the process. The method of treatment is concrete, speculation and theorizing being conspicuously absent.

An adequate review of this work must be deferred until the appearance of the third and fourth books, which are to treat respectively of the most important processes and movements of modern economic life—as, for example, of commerce, money, value and price formation credit, distribution, etc.—and of the total results of the process of economic development through which the race has passed. Only then can the full value of the author's method of treatment be appreciated. Then, too, will be the best time to consider in detail the author's views on special topics and the extent and value of his contribution to economic science. Meanwhile students of economics will do well to read carefully and often and to digest well the contents of the present volume.

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*Festgaben für Albert Schäffle zur siebenzigsten Wiederkehr seines Geburtstages.* Von K. BÜCHER, K. V. FRICKER, F. X. FUNK, G. VON MANDRY, G. VON MAYR, F. RATZEL. Tübingen: Verlag der H. Laupp'schen Buchhandlung, 1901. 8vo, pp. viii + 390.

ON February 24 of last year occurred the seventieth anniversary of the birth of Albert Eberhardt Friedrich Schäffle. In celebration of this occasion and in honor of the veteran sociologist the book at present under review was published. It is printed in large, bold type on heavy paper of good quality, and has as its frontispiece an excellent likeness of Schäffle in photogravure. The preface which follows expresses the high esteem in which he is held by the contributors to this volume and his colleagues and students throughout Germany. The main part of the book consists of six monographs with the following titles: "Gebiet und Gebietsheut," Karl Victor Fricker; "Der Lebensraum. Eine biogeographische Studie," Frederick Ratzel; "Zur griechischen Wirthschaftsgeschichte," Karl Bücher; "Zur Geschichte des Wucherstreites," Franz Xaver Funk; "Das Grundbuchwesen in Württemberg," Gustav von Mandry. "Begriff und Gliederung der Staatswissenschaften," George von Mayr.

These particular monographs were evidently chosen, not only because of the intimate personal relations existing between their authors and the man whom they desired to honor, but also because they illustrate the breadth of the field in which Schäffle worked and the wide extent of his influence. The first two monographs are theoretical in their character and belong to general sociology, or to political science in the broadest sense of that term; the third and the fourth belong to the field of economic history; the fifth to administration in the technical sense of that word; and the sixth treats of the classification of the various social sciences and of their relations to each other. Schäffle's own work covers all these fields. His *Bau und Leben des Sozialen Körpers* contains an encyclopedic sketch of the anatomy, physiology, and psychology of society. Most of his other books and many of his magazine articles fall within the general field of political economy, but cover a very wide range of subjects. Among his contributions to periodical literature are numerous articles on theoretical questions belonging to the broader science of sociology and to political economy and political science in the narrower sense,

as well as numerous contributions to the discussion of practical administrative, economic, and social questions. The breadth of his interest is shown, not only in his published writings, but also in his work as a public officer and editor. For a time he held the post of Minister of Commerce in the Austrian government, and from 1860 to 1892 he shared the editorial management of the *Zeitschrift für die gesamte Staatswissenschaften*. Since 1892 he has been editor-in-chief of this important periodical, which, as its name implies, covers the entire range of the political sciences.

The monographs contained in this book cannot be regarded as important contributions to knowledge. Two of them are controversial in character. Fricker's contribution is a defense of certain views regarding the relation between a state and the territory it occupies, which were first expressed by the author in a monograph published in 1867, and which have been subjected to severe criticism from various quarters. Bücher's article is a defense of the position assigned to the economy of the ancients in his *Entstehung der Volkswirtschaft*. Against the view that the natives of classical antiquity never developed beyond the stage of household economy, Eduard Meyer, Julius Beloch, and others have attempted to show that the Greeks passed through every stage of economic development, and in proof have cited passages from ancient writers to show the existence of large factories and of commerce on a large scale among the ancient Greeks. In the monograph contained in this book Bücher subjects the interpretation of these passages to a careful criticism, and shows how slender are the grounds upon which the views of his critics are based. Funk's article is a supplement to his book, *Geschichte des Kirchlichen Zinsverbotes*, published in Tübingen in 1876. It is devoted to a description of the great controversy over the taking of usury which started in Verona in 1740, and to an account of J. J. Rossignol's *De l'usure*, published first in 1787 and again in 1803. The work of Rossignol was not known to Funk at the time of the publication of his book, and new material relative to the controversy of 1740 having come into his possession, he was able in the monograph to give a more complete account of that interesting struggle than his book contained. This is decidedly the most interesting monograph of the series, and the only one which contains really new material. Von Mayr's treatment of the classification of the social sciences and their relations to each other is an attempt to present a more comprehensive and logical classification

than has yet appeared, but it is not sufficiently strong either on the analytical or literary side to warrant the expectation that it will exert much influence either upon the writers of books or upon the organizers of the social science departments of our universities.

It is the spirit which animated the authors and the publisher of this book rather than its contents which calls for special commendation. To testify in this manner to the value of the scientific work and the personal influence of such a man as Albert Schäffle does honor to Messrs. Fricker, Ratzel, Bücher, Funk, von Mandry, and von Mayr, and will serve to spur the present generation of workers in the field of sociology to deserve similar treatment from their colleagues and students.

W. A. S.

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*Grundriss zu Vorlesungen über Praktische Nationalökonomie.* By GEORG VON MAYR. I. Teil. Einleitung und allgemeiner Teil. Tübingen: Verlag der H. Laupp'schen Buchhandlung, 1900. 8vo, pp. viii+103.

IN publishing this little book Professor von Mayr joins the considerable number of German teachers of economics who have recently given the syllabi of their lecture courses to the public. Of course, such publications have most value for those who follow the lectures. The discussion is necessarily too sketchy to have much interest for anyone who does not hear the headings amplified in the class room. But to teachers who like to know what topics are selected by others for special discussion, and what order of development is followed, the table of contents in any such publication is worthy of attention.

From this point of view, the notable fact concerning Professor von Mayr's lecture scheme is that he has become convinced of the pedagogical necessity of prefacing his treatment of "practical economics" by a general theoretical introduction. This is devoted to an "investigation of the fundamental nature of economic life and the scientific concept of it." On this there follows a "general part," of which the aim is to give a "comprehensive survey of certain underlying questions of practical economics and of the economic policy followed in dealing with them." It is this introduction and "general part" alone that are covered in the present issue. Among the specific questions



to which attention is given are the proper limits of state interference, protection, private property in land, the policy of the state in regard to emigration, immigration, colonies, etc. Under each of the titles copious references to recent literature are given, and, in many cases, as one might expect from the editor of the *Allgemeines Statistisches Archiv*, convenient summaries of statistical data are supplied.

W. C. MITCHELL.

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*Industrial Evolution.* By CARL BÜCHER. Translated by S. MORLEY WICKETT. New York: Henry Holt & Co., 1901. 8vo, pp. xiv + 391.

DR. WICKETT has performed a valuable service by making Professor Bücher's *Entstehung der Volkswirtschaft* more readily accessible to English-speaking students. In the original form the book had enviable success, passing through three editions between 1893 and 1900. Not the least of its merits was that it appealed scarcely less to the "general reader" than to the specialist. This, no doubt, was due in some measure to the peculiar attractiveness of the theme, but it is also true that Professor Bücher has the knack, somewhat rare among his colleagues, of making his work interesting to everyone, without yielding one jot or one tittle of accuracy and thoroughness.

The new title, *Industrial Evolution*, indicates the nature of the work better than the title adopted for the German edition from the longest of the essays. It will be many years before anyone will be in a position to trace the long course of industrial evolution with an approach to completeness, but as a preliminary sketch the present series of essays has but one serious rival—Professor Cunningham's recent books upon the economic aspects of ancient and modern civilization; and even these volumes are complements of, rather than substitutes for, Bücher's work.

The translation is from the third German edition (1900) and includes the new essay upon "The Economic Life of Primitive Peoples." Dr. Wickett's rendering appears from an examination of various passages to be faithful, and, at the same time, less heavy than many English versions of German originals.

W. C. M.

*Natural Economy: An Introduction to Political Economy.* By ARTHUR H. GIBSON. Birmingham: Cornish Brothers, 1900. 8vo, pp. 135.

By its originality and suggestiveness this book claims a measure of attention greater than its size or its definite conclusions would ordinarily secure for it. The author explains in the preface that it forms only a part of a larger work he had projected on the subject. Seeing no prospect of completing the work, he decided to submit this part to the public judgment, as he had been led to "some conclusions which differ from those of previous writers."

He feels that the prevailing treatment of political economy fails to recognize the conflicting interests of different nations. He says, much in the spirit of American critics of the early school, that many modern writers have been contented with proving the truth of propositions as applied to the whole human race, and have assumed that they must therefore be true as applied to particular states. He suggests a comprehensive classification of economics into natural, cosmopolitan, communital, and individual economics. Only the first division, that dealing with natural economy, is treated in the present book, and of its two parts, objective and subjective natural economy, only the former with fullness. Objective natural economy "excluding human motives and human institutions, concerns itself with the operation of human faculties in satisfying human requirements." It traces the dependence of men on the bounty of nature.

The treatment of objective natural economy begins with a description of the economy of a bee-hive, and an interesting comparison is made with the conditions in human society. Throughout the book reference is frequently made to the economic conditions in the life of the lower animals. The essential conditions of production are classified as natural objects, forces, and intelligence, and the thought of natural objects further is said to embody five distinct ideas: first, that of a storehouse of materials, such as coal; second, of the foundation on which more permanent products are erected; and, third, the uses of land in agriculture, which include land (*a*) considered as a storehouse of the constituents of vegetable products, (*b*) as the fixed "plant" evolving them, and (*c*) as the distillery by which some parts when consumed are replaced from the atmosphere.

Natural objects are divided, according to economic character, into

undiminishing, replenishing, and unreplenishing objects. The first are typified by air and sea water; the second by natural fruits and qualities of soil which, if left to themselves, will be restored after using; and the third by deposits of minerals consisting of a limited store. Land, considered as a storehouse of minerals and as a foundation, is an unreplenishing object; and considered as the agent in agriculture, is a replenishing object. Next are discussed the various sources from which motive power can be derived, and it is shown that there are practically inexhaustible possibilities if man can but devise means of employing them. The important conclusion is then drawn that natural resources and forces are, for nearly every economic purpose, practically limitless in quantity.

The paradox of the book consists in the striking contrast between these "unlimited" agents of production, and intelligence which is declared to be the only factor that is limited. Thus the book, though beginning with a study of objective natural conditions, is in its central thought strongly subjective even to the point of exaggeration.

For there is certainly a fallacy in the argument as to the limitlessness of natural resources. One asks himself whether the author has not been misled by his own term "replenishing" natural objects. Even though land if left fallow will recover its fertility, in practice it cannot be left fallow. When utilized intensively it is not replenished in the sense he gives to the word, and although it is true that great quantities of natural objects remain unused, they are of a lower quality. Those of the better quality are limited, in any practical sense of the term.

In the author's discussion of diminishing returns, products are divided into staples and non-staples, staples being the objects necessary to maintain civilization upon the existing plane, and non-staples those making possible a greater measure of leisure. In an interesting and original way, suggesting, however, ideas that occur with Clark and Patten, the author shows that the increasing efficiency of larger and more intensive industry in manufactures serves to offset a decreasing efficiency in the industries more nearly connected with natural objects. He conceives of an economic point where these two lines of production, staples and non-staples, give the maximum of welfare to the community.

The book is mainly significant as a sign of discontent with the old indiscriminating treatment of land, rent, and diminishing returns. It

has notable defects, as no doubt the author would be most ready to admit. It is a fragment. It is abstract in statement. While the thought could not be called immature, it is certainly in many parts unma-tured, and could undoubtedly have been much improved by further study. But the book also has decided merits. It is refreshing to meet with new illustrations of an old subject, to hear an author speak in words other than the old cant phrases that have so long re-echoed through economic literature. The treatment is suggestive and at times illuminating, and the reader must lay the little book down with the sincere regret that the author has found it impossible, in the press of other duties, to complete it as it was originally planned.

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*La Lettre de Foire a Ypres au XIII<sup>e</sup> siècle: Contribution a l'étude des papiers de crédit.* Par G. DES MAREZ, Archiviste adjoint de la ville de Bruxelles. Bruxelles: H. Lamertin, 1901. 8vo, pp. 292.

THIS very interesting work is based on the study of nearly eight thousand documents which the author recently discovered in the archives of the city of Ypres. These documents are, with a few excep-tions, *lettres de foire*, written in the French language; all are dated during the years 1249 to 1291, though the greater number fall within the last ten years of the period. No other collection so extensive is known to exist.

The *lettre de foire* was a species of credit paper that came into use among Germanic peoples near the beginning of the thirteenth cen-tury, soon after bills of exchange rose to importance among the Italian bankers and were introduced by them to the other Latin peoples. It was known in England under the name *littera obligatoria*. For three or four centuries it was the prevailing mode among the northern nations of giving documentary evidence of a debt. It was not finally supplanted by the more convenient bills of exchange until the fairs, with which it was closely connected and from which it obtained its name, had also disappeared.

Sample letters, each printed entire, occupy over half of the book. Here is one of them; the italics are the author's introductory sum-mary:

*Gérard de Belgoer se reconnaît débiteur de 12 liv. d'Artois envers Aubri de Reims, bourgeois de Saint-Quentin, payables à la foire de Provins en mai, au créancier ou à son commandement.*

Octobre, 1249.

Sachent tout chil qui sunt et qui a venir sunt et qui cheste presente chartre partie veront e oront que Gherart de Belgoer doit 12 lb. dart. a Aubri de Reins, bourgeois de Sen Quentin, u a son commandement, qui cheste presente chartre partie apportera, a paier a Provins en Mai, le premiere que nos attendons dedens paiement. Chou connoissent eskevin de Ypre, Hugheloot Fallais et Johan fix Andries. Chou fu fait en lan del incarnation nostre Singor Jhesu M. CC. XLIX, el mois de Octobre.

Chirographe en parchemin. Archives communales d'Ypres. Collection des chirographes, 1249-1291.

The debtor appeared in person before the magistrates and made an oral statement of his obligation. This was put into writing, usually by a clerk. The debtor as well as the creditor and the attesting magistrates were all named in the third person. No signature was attached to the letter, except that after March, 1283, the letter bore on the back the personal emblem or hieroglyphic of the clerk who engrossed it. The number of magistrates attesting a letter was nearly always two, though sometimes as many as five or six. The letter was written in duplicate on a single sheet of parchment which was then cut apart with indentations; one copy was given to the creditor and the other retained by the magistrates. The copy given to the creditor bore on the back the name of the attesting magistrates, while the copy retained by the magistrates bore the name of the creditor. The author takes pains to say that there was in use, even in Germanic countries, a *lettre privée* or *debita non recognita per scabinos*.

The first few words contain the phrase which still survives in our "Know all men by these presents." In nearly all of the letters, however, it is cut short—"Sachent tout, etc."—and in the latest ones the "etc." is also omitted. The phrase "u a son commandement," corresponds to our "or order" and provided for the transfer of the claim, though the clause following, corresponding to our "or bearer," leaves one in doubt about the procedure necessary for the transfer. The author concludes that the bearer, when not the original creditor, was required to show that he had received authority from the original creditor; the transfer of the latter must have been formal (*conventionnelle*) to carry with it right to collect the debt. The author gives no

hint what the formality was, except to say that endorsement was not practised at that time.

The documents under consideration, unlike the bill of exchange, did not necessarily require payment in money. Goods of any kind might be promised, either absolutely or as alternative to the payment of money; likewise services or the use of property. In fact a contract of almost any kind might take the form of a *lettre de foire*.

The debt was usually made payable at a fair (*foire* or *fieste*) at a time and place named, sometimes with the qualification, *le prochain que nous attendons a venir*. Merchants from various parts of Europe met at these northern fairs to pay and collect debts as well as to buy and sell goods. This arrangement largely obviated the necessity of carrying sums of money from one fair to another and permitted much business to be done without the use of any money whatever. Security other than the word of the debtor was frequently used. In the letters the statement of the debt is sometimes followed by a guarantee of payment by one or more persons named. Two or more persons were sometimes named as debtors, when only one was the real debtor, the others being only guarantors. The book gives the text of a letter in which two citizens of Ypres promised to pay a certain widow 21 Artois pounds. Then follows the text of another letter, of the same date and attested by the same magistrates, in which another party promises to pay the two citizens the 21 pounds they have promised to pay the widow. The first letter is only the promise of the guarantors and does not contain the name of the real debtor. Then certain property may be named as security, most often wine, wool, cloth, and city real estate. The merchants frequently owned houses and lands, and appear to have mortgaged them freely to secure their debts.

The law and the practice of the thirteenth century were less tender of the debtor than they are today; not often was anything stipulated in his behalf. On the other hand the interests of the creditor were guarded in many ways. The *lettre de foire* was a confession of debt, and if the debt was not paid at maturity the creditor was not put to the trouble of proving his claim; he only needed to exhibit his copy of the letter to the authorities and they would without further formality proceed to collect the debt, if necessary by seizing the goods or person of the debtor. In many of the letters the debtors waived privileges which they might otherwise have claimed, such as taking sanctuary, trial by the laws of their own cities, or exemption because of going on a crusade.

The author has done his work well ; he is cautious in drawing conclusions, his style leaves nothing to be desired, and he lets the letters tell their own story as far as possible. The book, especially in the 161 sample letters it contains, gives information on many features of economic life in the thirteenth century, notably about the fairs, the kinds of money in use, and the residence and rank of the merchants that were prominent in Flemish trade ; some light is given on the relation of the nobility and the church to the commercial life of the time and on the conditions of landholding in the cities. The book is thoroughly indexed.

F. R. CLOW.

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*La main d'oeuvre industrielle dans l'ancienne Grèce.* Par PAUL GUIRAUD. Bibliothèque de la Faculté des Lettres. Paris : Felix Alcan, 1900. 8vo, pp. 212.

THE economic features of the past have of late been studied with profit both in the extension of knowledge of past epochs and in comprehension of our own age. Some of the latest German scholars wish to picture the past in lifelike colors and attempt to explore the unknown by means of the known. Others prefer, for the purpose of illustrating a certain feature of economic life, for instance, to employ the safer method of bringing before us all that the original authorities contain upon the subject, letting these instances speak for themselves and the reader draw his conclusions as he proceeds. To this last class of investigators Professor Guiraud belongs. His book is rather a careful series of instances drawn from the sources and placed in such a relation as to make a pleasant narrative, rather than any attempt to present new ideas by means of interpretation or special suggestion. In twelve chapters somewhat crowded with incidents to illustrate the industrial life of ancient Greece, Professor Guiraud brings before us the three classes engaged in industry of every kind, the free, the freed, and the slaves. The author shows conclusively that Greece possessed an extensive industry depending to some extent upon slave labor, but more upon the skill and ardor of the free and the freedman, who took to the crafts as his natural opportunity for earning a living. A large part in the industrial and commercial life, especially in Athens, was played by the alien element, and we are inclined to agree with the author that to them should be attributed more importance in the

development of Greek commercial life than is usually granted them. Professor Guiraud treats of the early (prehistoric and Homeric) periods and the three classes of artisans separately, and his book has accordingly much information also for one interested in the social questions of ancient Greece. Athens, as the city whose records are most complete gives the larger portion of instances that go to show the character and extent of industrial labor. In the beginning, the pre-Homeric and the Homeric age, oriental influence was necessarily considerable in those parts of Greece open to commerce from the East and the opposite coast. But native workmanship seems to have asserted itself at an early date. In the small country of Greece with its numerous independent communities there was from time immemorial no trace of caste system or guilds such as were natural to the Eastern peoples. A son followed his father's calling from desire not from compulsion. Perhaps for this reason Greek workmanship early reached a higher average of excellence and intelligent treatment of the material than is seen in the larger centers of culture. As a result of her thrifty and energetic population Athens of all Greek cities soon became a leader in certain kinds of industry. But Greece, as a whole, must have been a beehive of activity in which free labor bore its liberal share. Otherwise it is impossible to see how an increasing population, the emergencies of war, trade, and colonization could be provided for. Athens alone had a large fleet to maintain and colonies to supply. According to Guiraud, the Greeks never held manual labor in contempt; in fact idleness seems to have been generally looked upon with disfavor as fostering evils that a small self-dependent community could not easily brook. The tyrants always managed to give the laboring classes plenty of work and thus kept them content, and in Athens the legislation of Solon made it a moral obligation of every citizen to teach his son a trade. As Thucydides has it, to be poor was not the worst, but to do nothing towards one's improvement. In this matter Sparta was, of course, an exception, unless one considers military training a craft to be mastered like another. In Athens the popular assembly was largely made up of the small artisans and tradesmen who thus counteracted by political influence the lack of social prestige, in which the rich landowners and aristocrats might look upon them as being deficient. Only in later times, when philosophy came to have a molding influence upon people's view of life and developed the doctrine of aristocratic leisure as necessary for statesmanship, were the



workmen, tradespeople, and small manufacturers, whose professional success was the chief aim of their life, looked down upon as belonging to an uncouth multitude born to work and provide but not to think or rule. On a small scale division of labor seems to have been practiced, separate articles being made and sold by separate dealers, one baker (to take the most homely example) having only pastry, another only bread. It is not strange that this should be noticed by the author, inasmuch as he has attempted to make his picture of Greek industrial life as complete as possible; but the fact is not remarkable in a society like that of Athens or Corinth or any larger trading city where the people were altogether dependent upon their wits and inventiveness, and where the close neighborhood of Asia Minor must soon have created taste for refinement and specialization. Any harbor city in this respect is always a generation ahead of inland towns. In this connection it may be proper to refer to the remark made on page 87, where the author mentions the fact that machinery seems to have been almost unknown to the Greeks. This seems to us a most natural thing. As long as slavery exists and there is human material to continue heavy work without great cost, machinery is not called for. The slave himself is a machine, and in some ways the most perfect one. Besides, in a country or a zone where sun and light is plentiful and the need of keeping warm does not rivet human attention on the existence of a constant fire, heat and its facilities for easing human life do not present themselves so insistently to the mind. Men live on little and there is no need of providing for a period of enforced idleness. The ancients had no need of the artificial warmth for which the northerner struggles with all his might in order to make his life equal to that of races favored by nature. And if coal mines, on which, by the way, our modern industry depends, had been discovered by them they would have been at a loss to know what to do with these treasures.

The author finishes with a chapter on the wages paid workmen, and another giving instances of the life they led. All is strictly based upon information from the sources, which comprise the literary remains, the inscriptions and whatever the excavations may have contributed to the understanding of the past. Thus the book may be said to be a well-furnished storehouse of information of a thoroughly trustworthy kind which the student of economic and social life may use with great profit. In the conclusion the author briefly sums up the results of his inquiry, and although this result is by no means

startling in its newness, it at least serves to confirm opinions already entertained and thus settles possible disputes. If we have any fault to find with the work it is that it is so peculiarly colorless in tone, without the least power to make the reader personally interested in what the author has to say. Surely one can go too far in scientific objectivity and disinterested narration. Perhaps it is a reaction against the wholly literary treatment which once prevailed, but it is to be deplored that the reaction has swept historical literature, especially within the department of research, often so chemically clean of every embellishing or even engaging feature. It is truly remarkable how the dry non-committal manner of the learned dissertation, purged of all grace and liveliness of style, has of late come to prevail even in French historical writings; the gift of style as an individual trait, which it seemed almost every educated Frenchman possessed, seems to have been choked by the dust of archives and resolutely destroyed. A modern desolation seems to dawn upon us. But whether absence of style be a distinct loss or not, the writer has succeeded in doing a reputable piece of work as concerns conscientiousness and careful analysis.

A. M. WERGELAND.

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*Die florentiner Wollentuchindustrie vom vierzehnten bis zum sechzehnten Jahrhundert. Ein Beitrag zur Geschichte des modernen Capitalismus.* By A. DOREN. (Studien aus der florentiner Wirtschaftsgeschichte. Band I.) Stuttgart: Cotta'sche Nachfolger, 1901. 8vo, pp. xxii + 584.

THE means through which mediæval Florence won its wealth, and in winning wealth won the power to develop its intellectual and artistic greatness, was the cloth industry and cloth trade. A singularly clear and detailed description of this field of enterprise is given us by Doren in the volume whose title stands above. With masterly strokes he has drawn a picture, almost startling in distinctness, of the nature and the causes of this wealth-bringing industry; he has disclosed its potent influence in preparing the soil for the growth of a marvelous culture, in shaping the social structure and coloring the civic life of the most brilliant of Renaissance communities.

In the preparation of his monograph the author has waded deep in the contents of the Archivio di Stato di Firenze, and a brief descrip-

tion of the classes of materials he found there precedes his introductory chapter. It is on these materials that he has mainly relied; and not only for the organization and processes of the manufacture, but also for that end of the trade which lay in Florence itself he has found them both trustworthy and sufficient. But for that end of the trade—the purchase of wool and the ultimate disposal of the cloth—which lay in foreign countries the author has been forced to trust to other writers, with the result that in this field his work shows traces of inaccuracy and weakness. We are inclined to believe him mistaken, for example, in saying that the greater part of the English wool consumed by the Florentines about the middle of the fourteenth century was purchased by them at Bruges. For we find that even as early as the date of the *Hundred Rolls* there were already several companies of Florentine merchants shipping wool from Boston and Lynn, while there were others established at Northampton. Furthermore, many of the British monasteries in 1284 had a standing agreement to dispose of their wool direct to the representatives of Florentine houses. Indeed, our author has let himself be entirely misled when he says that in 1334 the English staple was permanently fixed at Bruges. The staple remained at Bruges a very short time; and even while it was there the Florentines were much hampered in their trade, owing to the attempts of the men of Bruges to monopolize the supply of English wool and absolutely to prohibit the export of it by Italian and Spanish merchants. It was partly complaints of this conduct that led to the removal of the staple to England in 1353. But after all occasional lapses in this branch of the subject impair but little the excellence of the work.

A more serious defect, as it seems to us, is implied in the title of the work—*ein Beitrag zur Geschichte des modernen Capitalismus*. What the capitalism developed in mediæval Florence had to do with modern capitalism it is difficult to discover. The writer has indeed been able to point out certain analogies; but to show that in its nature the one was related to the other, or that the existence of the one in any degree influenced the development of the other has been impossible; and the attempt to show any real connection between them tends to make us somewhat suspicious of the writer's point of view throughout.

Unfortunately, by reason of the inadequacy of the sources, the author has found it impossible to describe the first stages in the development of the industry. How it came to be capitalized and controlled

by a small body of undertakers that discharged mainly commercial functions, and how in consequence an essentially homogeneous city population came to be differentiated into a powerful and exclusive class of capitalists, a numerically and politically weak middle class, and a vast and defenseless wage-earning proletariat, he has as yet been unable to discover. But however this development may have occurred, it was completed when the fourteenth century began. By that time the Calimala guild, which had been engaged in importing and refining for re-export the coarser cloths of the Northwest, had yielded in economic importance and political influence to the guild of the wool manufacturers.

This guild was a very different institution from the contemporary craft guilds of other countries. The guilds of Cologne, indeed, bore some resemblance to it in that they were of an aristocratic character; but the powers of the Cologne guilds were limited in various directions by the municipal government, as when, for instance, in 1258 they lost the privilege of fixing prices; whereas, on the other hand, nothing can be more significant of the power of the capitalists in Florence than the fact that although a similar law was passed there in 1290 it was never put into execution against them. Only the capitalist undertakers, the *Verleger*, were full members of the cloth guild. These bore to the weavers and other workers relations not unlike those borne to similar artisans by the English clothiers of the later fifteenth century. They took no part in the manual labor of manufacturing; in addition to the duties of organization and management they discharged mainly those of a commercial nature. The closeness of their organization enabled them to control every stage of the industry from the arrival of the wool in Florence to the export of the finished cloth. Amongst themselves they attempted to preserve a certain equality, partly by limiting the number of workmen each should employ in his own establishment and partly by taxing all the cloth that each produced beyond a fixed amount. They determined minutely the varieties of cloth that should be manufactured, the quality of each variety, and the processes through which it must pass. In certain branches of the industry for which individual undertakers were not strong enough—as in organizing the import of wool and oil, erecting expensive dye-works, etc.—the guild even assumed in its corporate capacity the rôle of undertaker.

It was, however, in exploiting the laborers that the guild chiefly

manifested its power. The manufacture of cloth, being an export industry, was necessarily exposed to varying market conjunctures. All the unfavorable consequences of this the guild shifted upon the workmen by fixing a maximum rate of wages and leaving the minimum to be determined by the price of cloth abroad. The most unfortunately situated class of workmen were the *ciompi*, who labored by the day in the shop of their employer. But even those classes, such as the weavers, that performed their work at home, were in little better case, since the employers were able through loans which could be paid only in labor to reduce them to absolute dependence. It was only the dyers who owned more capital and were better organized than any other class that were able to influence in some degree the rate at which they were paid for their work.

The causes found by Doren for the great prosperity of the industry are fourfold: the subtilty of the technical processes, which he is able minutely to describe; the excellence of the raw materials selected; the organization of the manufacture (especially in regard to the management, division, and adaptation of the labor employed); and the uttering of the finished cloth by a highly trained and energetic class of undertakers, who brought to their work an intimate acquaintance with all the prevailing conditions of international commerce. In reality, although Doren does not say so, his description convinces us that it was the effective organization of the capital owners which rendered these causes operative. The decay of the industry he attributes before all things else to the development of competition on the part of other countries. After the middle of the fifteenth century it was England especially that undermined the prosperity of the Florentine manufacturers, partly by ceasing to supply them with wool and partly by learning itself to produce varieties of cloth that were preferred in the markets to any produced in Italy.

But there were also certain domestic causes of decay: the establishment of the rule of the Medici, with the resulting increase of taxes and loss of freedom; the growth of political and economic indifference under the influence of the Italian humanism; the increasing scarcity of labor after the cessation of immigration from the north; and, not least of all, the failure of several important guild enterprises. Yet in fact just as the prosperity of the industry was due to the shrewd and enterprising, though selfish, policy of the capitalist organization, so its decay may be accounted for by the weakening of that organization

and the loss of any definite policy at all. "The guild as a self-governing body acquired more and more the mere semblance of existence." "In its economic legislation there is an utter lack of creative ideas; no trace remains of that elasticity, of that power of adaptation to new conditions that had characterized the guild in the time of its greatness." Historians have pointed out how in the Medici family as one generation succeeded another there was a marked decay of commercial talent; the grandsons of Cosimo brought well nigh to bankruptcy a business that their grandfather had left rich, prosperous, and well established. Coincident with this decay of business ability in the governing family was the deterioration of the whole capitalist class. With freedom gone and their organization robbed of the power of self-government, the individual undertakers could no longer bring to the management of their affairs the labor-loving energy and the aggressive, hopeful, and farsighted sagacity that had compelled success in former days. When, therefore, competition developed, they were no longer able to meet it.

THOMAS WALKER PAGE.

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*Commercial Trusts.* By JOHN R. DOS PASSOS. ("Questions of the Day" Series). New York: G. P. Putnam's Sons, 1901. 12mo, pp. viii + 137.

*Les syndicats industriels de producteurs en France et à l'Étranger.* Par PAUL DE ROUSIERS. Paris: Librairie Armand Colin, 1901. 8vo, pp. viii + 290.

THE first of these two books is a reprint of the testimony given by the writer before the Industrial Commission. The book is in no sense a scientific discussion, but rather the plea of an advocate. The argument runs along the somewhat stale line of the desirability of letting "the natural laws of trade alone and they will take care of themselves." The writer takes issue with those who advocate publicity as a check on bad corporate management, insisting that "no man who is not interested [as a stockholder] in a corporation has any right to know anything about it. It is none of his business."

The second book is of a different character. It is a discussion of the three methods of industrial concentration represented respect-

tively by the American trusts, the German cartels, and the French *comptoirs*. While the presentation is neither exhaustive nor new, it is temperate and scientific. M. Rousiers first points out that American trusts and European syndicates have a common origin in the growth of large businesses and keen competition. He describes the development of trusts, and thinks it has been promoted by the tariff and by railroad discriminations. His analysis is followed by an account of several of the principal trusts and a description of the claims made in their behalf.

The cartels M. Rousiers describes as associations of members of nearly equal strength, formed to prevent excessive competition and low prices. He points out that the degree of concentration of management is less than in the case of trusts, that the cartels are less efficient, and that they are available only in businesses whose products are uniform and not easily replaceable by substitutes. Their weakness lies in the fact that they prevent the elimination of the weaker concerns, while, in his judgment, our trusts bring about this elimination. In this he seems to be in error; for some of our combinations have many lame members supported from the proceeds of the more efficient.

The French *comptoirs*, according to M. Rousiers, partake less of the character of monopoly than either the trusts or the cartels; indeed, he thinks that conditions for monopoly are less favorable in France than elsewhere. Most of his discussion of the French syndicates is devoted to that of the *Comptoir de Longwy*, an association of producers of metallic goods. The association seems to be rather a pool to prevent loss to the members from changes of price, than an organization to monopolize the industry.

Comparing the three kinds of organizations, the author describes trusts as monopolies, cartels as leagues of mutual defense, and *comptoirs* as simply commercial agents. The author voices the common opinion that the movement towards concentration is not an artificial one, and that it is likely to do good if intelligently directed against over-production.

The discussion shows the same intelligent appreciation of conditions in other countries which M. Rousiers has shown in his other books.

DAVID KINLEY.

*Le fer, la houille et la métallurgie à la fin du XIX<sup>e</sup> siècle.* By  
GEORGES VILLAIN. Paris: Armand Colin, 1901. 8vo, pp.  
xvi + 342.

THIS is a book of 336 pages devoted to the discussion of the coal, iron, steel, and metallurgical industries of France and Germany, with incidental references to other countries. Mr. Villain has traveled through the regions prominent in these trades, and has interviewed a considerable number of persons. The result of his investigations is conveyed in a number of chapters which give the impression of a series of sketchy essays. There is comparatively little technical discussion in the work, and the political economy of it is of the simplest possible description. The author's attention is devoted mainly to the commercial aspects of the above-mentioned industries, with some chapters on industrial betterment as practiced at Creusot.

The volume opens in the midst of the subject with an account of the orders for locomotives and rails placed by the French railways in 1899 on account of the Paris Exposition. These orders overtaxed the French locomotive works, showing them to be small and old-fashioned in equipment. The arrangements subsisting between the French government and the railways are of such a character that it is to the advantage of the latter to acquire as little new rolling stock as possible. Consequently locomotives are repaired indefinitely, and there are on French railways a great number of different models in use, some having seen as much as forty years of service. Orders for machines in such a country are necessarily small, and the practice is to split up these orders between different establishments. The result is that many of the costs of production such, for example, as designing, draughting, and estimating, and the cost of raw materials, are made exceptionally high. In 1900 there were 484 locomotives constructed in France; in the United States 3158.

In the production of steel the introduction of the basic process, by means of which ores high in phosphorus can be used, has built up the great steel region of France in the department of Meurthe-et-Moselle. In contrast with American methods this region seems but modestly equipped. The furnaces of France have an average output of 150 to 170 tons per day, while those of the United States produce 500 tons, and many of them much more. The "American Danger" is referred to when mention is made that the United States produces nearly one-



third of the iron of the world, and of steel rails alone exports 300,000 tons, or twice the entire French production.

The chief obstacle to a high development of the iron and steel trades in France lies in the fact that she lacks a sufficient supply of coke to satisfy the needs of her industries. There is, however, much dissatisfaction with the way in which fuel supplies are handled. The chief matters complained of are that French coals are many of them unfit for use in the furnace; that coal miners are hard to obtain in sufficient numbers; that the cost of transporting coke over French railways is too high; that therefore France has to depend upon what German and Belgian syndicates wish to sell after supplying themselves; and, finally, that the French syndicate of coal miners restricts production and dictates hard conditions for the consumer.

The history of French and German selling associations in the coal, iron, and steel trades is given, in detail, in several chapters, and this may be considered the most valuable original matter in the book to the American reader. It shows that these associations began as penalty agreements to restrict production and that as they broke down in the various trades they gave place to more highly organized, incorporated, combined, selling agencies capable of holding the individual producing concerns in line with an agreement, because standing between producers and consumers, conducting all business between the two. The author asserts that the policy of selling associations is to restrict the quantity of goods placed upon the home market, and by that means raise prices to a profitable figure. All excess of production above the determined amount is to be marketed outside the country for what it will bring; the home protected market, in other words, is looked to for profits. The result is that France, Germany, and Belgium are taxed to supply other countries with iron and steel at low prices. This result he holds is to achieve the same sort of folly that government bounties have achieved in the European beet-sugar industry, to the advantage of England.

A very reasonable conclusion of the author is that France is not in a position to compete in the world's markets with such a country as the United States, in those branches of the steel trade where the economies of production on a large scale are the controlling factor. The function of France is rather to supply specialties—articles “made to order”—involving peculiar skill and much hand labor, requiring art in graceful designing and great care and experience in finishing.

EDWARD D. JONES.

*Die Meistbegünstigung der Vereinigten Staaten von Nordamerika.*

Von RICHARD CALWER. Berlin and Bern: John Edelman, 1902. 8vo, pp. 154.

THIS work treats not only of the most-favored-nation relations between the United States and Germany, but also of the general German-American commercial relations, with special reference to the new German commercial treaties which will be formed after the expiration of the present (Caprivi) arrangements in 1903. After a short introduction, in which the nature of the problem is stated, the author considers successively: (1) the legal side of the question, wherein he shows very clearly—that which has already been demonstrated<sup>1</sup>—the inconsistent and unsatisfactory character of the treaty regulations of the two countries; (2) the material effects of the most-favored-nation relations upon German commerce, industry, and labor conditions, based upon a careful study of the German-American trade statistics; (3) the continuation of the middle-European (Caprivi) commercial treaties, and, (4) the dangers and probabilities of a tariff war. This last chapter is, perhaps, the most interesting to Americans. The author considering, first, the total value of the commerce between the United States and Germany, concludes that the vast preponderance of German imports from the United States over her exports thence places the advantage, in any tariff war, largely on the side of Germany. However, in considering more in detail this trade, he finds the conditions by no means so favorable for the fatherland. As regards imports from the United States he concludes that Germany could dispense with American exports to the value of about 150,000,000 marks (the most important item being petroleum) or about 15 per cent. of Germany's total imports from the United States. On the other hand, as regards exports to the United States, the conditions are even more discouraging for Germany. A large percentage of these exports might be obtained from other countries like England, France, and Belgium. The author contents himself, however, that this would bring about an industrial shifting, meaning thereby that, if other European countries absorbed more of the American trade, Germany would no doubt increase her trade with European countries. As the author proceeds with his argument he becomes more and more discouraged with his efforts to make out a

<sup>1</sup> FISK, *Handelspolitische Beziehungen zwischen Deutschland u. den Ver. Staaten* (Stuttgart, 1897), and *Handelspolitik der Vereinigten Staaten, 1890-1900* (Leipzig, 1900).

favorable case for Germany in the event of a tariff war with the United States. In the first place, he says very truly, that the American government does not want such a war. He then affirms that the United States could damage German industries very little by raising her tariff rates, for these are for the most part practically prohibitive. Nor would the 20 per cent. reduction allowed by the Dingley bill be of an advantage equivalent to that which the United States would demand of Germany. In this respect all western continental Europe stands in the same economic relations to the United States as Germany. The discouraging situation leads him to recommend united European action, although in doing so he admits, almost in the same breath, the impossibility of such co-operation. These are his closing words:

Would Europe earnestly and effectively resist the extreme protective tariff policy of the United States, she must, so far as possible, remove her inter-state tariff barriers—not for the advantage of the United States but in order to render greater facility to the commerce of middle Europe. A universal high tariff should be applied against the United States to compel it to abolish its Chinese tariff wall. Every other tactic favors the exclusion policy, not only of the United States, but also by direct reaction the same policy in Europe itself.

Taken as a whole, the book is written in a fair, judicial, and scientific spirit, and gives us a valuable summary of the present economic and legal relations between the United States and Germany.

GEORGE M. FISK.

JACOB TOME INSTITUTE.

*Die gewerbliche Genossenschaften Belgiens.* By JOSEPH BOWJANSKY. [Schmoller's Staats- und socialwissenschaftliche Forschungen, XVIII. 3.] Leipsic: Duncker & Humblot, 1900. 8vo, pp. viii + 93.

THIS laborious but ill-written chronicle of consumers' and producers' co-operation in Belgium is valuable chiefly as a "Material-sammlung." The youthful struggles of industrial co-operation in Belgium—the author does not consider co-operation in agriculture or credit co-operation—while interesting enough in themselves, are highly unsuggestive to the American reader. The peculiar influences which have surrounded the Belgian movement, the frank and vigorous opposition of manufacturers and of retail dealers which has resulted in

restriction of the right of certain classes of co-operative stores to sell to non-members, the use of co-operative stores as a device for political agitation, and the distinctive Belgian ways of economic and social thinking, combine to give the Belgian movement such a distinctive character as to render comparisons with other countries of little value. Moreover, the Belgian movement is still too undeveloped to justify much induction further than that in Belgium, as in other countries, consumers' co-operation shows some vitality, while producers' co-operation has usually failed.

When the author rises above the rôle of chronicler—as in his excellent discussion of classifications of various forms of co-operation or in his suggestion that consumers' co-operation and state ownership may supplement one another, the state assuming such industries as it deems specially suited to nationalization, and consumers organizing those industries which correspond to their special needs—his ideas are probably suggested less by Belgian experience than by consideration of the writings of Mrs. Webb, Professor Gide, and Professor Herkner.

Consumers' co-operation in Belgium is of three types: co-operative pharmacies founded by benefit societies, co-operative stores conducted by government officials, and partisan co-operative stores, nurtured by political parties for political ends. The co-operative stores of government officials are restricted in their development by a ministerial prohibition of sales to non-members, but even within these limits the membership of the stores is small, owing chiefly to the indifference of the officials to co-operation. Most of the co-operative stores are partisan organizations frankly designed to gain support for the ruling Catholic party or for the rapidly growing minority of socialists. Both sides regard co-operation chiefly as means to a political end. The Catholics establish their stores where they most need to win votes from the socialists, and usually where a socialist co-operative store already exists. The socialistic stores are more numerous and successful. From the socialist's standpoint, consumers' co-operation, while a higher form of industry, is by no means a direct mode of reform of capitalistic industry. The socialists value their co-operative stores rather as effective centers of influence, and by their financial profits as means of direct financial support to the socialist propaganda.

One may note two devices adopted by some of these socialist stores for increasing trade: payment of dividends in the form of orders

which must be used in further purchases, and the offering of small pensions, also in the form of orders, to members of long standing. The amount of this pension varies with the amount of the pensioner's previous purchases. Under these various impulses consumers' co-operation in Belgium has gradually become more prominent during the last twenty years, but the movement is still small ; most of the co-operative stores are nothing more than co-operative bakeries, and much of the moderate measure of success which has been attained is the result of political rather than of economic motives.

None of the groups of co-operative stores in Belgium have as yet established "wholesales" or factories of their own. Instances of producers' co-operation are confined to little independent associations of workmen, and these have proved as incapable of development in Belgium as in the United States. Such co-operative associations of producers as do not fail may either continue as co-operative associations or transform themselves into capitalistic stock companies. In the latter event co-operation has served the valuable purpose of enabling workmen to become small capitalists, but no Belgian venture in producers' co-operation has ever enjoyed enough success to tempt its members to this transformation. The author records some thirty-two scattering attempts at producers' co-operation in Belgium during the last ten years. All the statistics of co-operation in Belgium are incomplete, but it is certain that not more than four of these attempts existed before 1890. Twelve have already failed, and those still existing do not appear to afford a greater reward than ordinary wages to their members, and are altogether in a state of tentative vitality. The author's estimate of the prospects of such producers' co-operation is wholesome for any who still persist, in the face of American and English experience, in viewing such ventures of little bands of workmen with the lively hopes of fifty years ago. Without denying the possibility of occasional success, especially within the field offered by industries which require little capital, Mr. Bowjansky concludes that producers' co-operation is generally foredoomed to failure unless the venture be started on a sufficiently large scale, and with sufficient capital to enjoy from the outset the latest technical improvements, and in this respect to compete on equal terms with the best equipped private businesses in the same industry. Even though an association of co-operative producers overcomes the dangers of inefficient organization and management and of uncertainty in its

body of customers, so long as it lacks efficient technical appliances it simply adds one to the group of small industries already doomed by their inefficient methods of production. Further, the hope that a little association, starting with inefficient methods, may persist long enough to acquire by its savings more efficient appliances is apt to prove as illusory as a hope that a cobbler may become, through his savings, the owner of a shoe factory. Exceptional instances aside, the path of progress for this form of producers' co-operation has proved a blind alley.

MORTON A. ALDRICH.

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*Die Entwicklung der Arbeitsteilung im Leipziger Gewerbe von 1751 bis 1890.* Von DR. OTTO PETRENZ. (Staats- und socialwissenschaftliche Forschungen. Herausgegeben von Gustav Schmoller. Band XIX. Heft 2.) Leipzig: Duncker & Humblot, 1901. 8vo, pp. 92.

IN this work the author attempts to show the progress made in the division of labor by an examination of the various occupations listed in the successive editions of the Leipzig city directory from 1751-1890. In the former year there appeared 118 industrial occupations, in the course of 140 years no less than 554 new occupations emerged, while during the same period 115 became obsolete, leaving in 1890 557 still existing. By far the most rapid progress was made in the period 1860-1890, when 295 new occupations came into being. This is attributed to the Saxon legislation of 1861, which granted freedom of occupation and removed the last of the old gild restrictions. The author examines in detail the nature of these changes, showing the origin of each new industry and the reason for its differentiation. In this he follows a somewhat modified form of the classification made by Bücher in his *Entstehung der Volkswirtschaft*.

The study shows careful work and presents many interesting features. It is, however, questionable whether the original material is sufficiently exact to justify the work, for, of course, the information in the directories was not gathered on any scientific principle. The author frankly admits the imperfection of the material and perhaps one should regret the labor spent in elaborating material to a degree of accuracy exceeding that possessed by the original data.

H. R. HATFIELD.

*Introduction to the Study of Commerce.* By FREDERICK R. CLOW.  
With an Introduction by F. W. TAUSSIG. New York:  
Silver, Burdett & Co. 8vo, pp. xxvi + 224.

MR. CLOW has made a timely response to the new interest in commercial education by issuing his *Introduction to the Study of Commerce*. Already text-books had appeared on commercial geography, commercial law, and commercial arithmetic, but this is the first attempt in America to present a more comprehensive view of the general principles of commerce.

In the difficult task of deciding on the content of the vague science "commerce," Mr. Clow has shown good judgment. The introductory chapter treats of the elements of commerce, after which come four chapters corresponding somewhat to the field of commercial geography. In these chapters are treated the materials of commerce, and the trade relations of the four leading nations. This fills about one-half of the book, the latter half being devoted to more technical subjects, namely: the organization of trade; prices (in part a statement of the marginal theory of value); payments, including the subject of banks, credit, and exchange; the equilibrium of foreign commerce; and practical devices for promoting commerce. The book closes with an appendix, which contains an interesting description of the leading commercial schools and some tables of bond values. A somewhat erroneous idea is given of the organization of the commercial college (Handelshochschule) of Leipsic. No new body of lecturers was appointed. The more technical courses, such as bookkeeping, correspondence, office practice, etc., are given by the faculty, and in the building of the old commercial academy (Handelslehranstalt). The remainder, constituting about two-thirds of the work, is given at the university by the regular faculty. In some cases the courses of lectures at the university have been modified to meet the requirements of the *student rerum mercatorum*; in other cases they are the familiar courses which have long been given by the philosophic faculty.

It should be noted that Mr. Clow's work does not profess to be a systematic exhaustive treatise on commerce, but a text-book designed for use in secondary schools. The author has accomplished his task admirably, and shown himself both an economist and a practical teacher. There is a simple directness which goes straight to the point without the excessive zeal for classifying and the cumbrous termi-

nology characteristic of many recent German works on commerce. There is no attempt to crowd an encyclopædia into the compass of a text-book; indeed, comparatively few of its pages are given up to the chronicling of facts. The book is a manual of instructions, beneficial to teacher and pupil alike. It assists the teacher, however, not in the common fashion of saving him labor, but by pointing out lines of work and guiding him so that the work will be effective. Mr. Clow is to be congratulated on being the first in the field; he is much more to be congratulated on the admirable way in which he has accomplished his purpose.

H. R. H.

*Englische Lokalverwaltung. Darstellung der inneren Verwaltung Englands in ihrer geschichtlichen Entwicklung und in ihrer gegenwärtigen Gestalt.* Von JOSEF REDLICH. Leipzig: Duncker & Humblot, 1901. 8vo, pp. xxii + 835.

STUDENTS of economics will be interested chiefly in the small portions of this work which deal with the financial administration of the English town governments and county councils. The author has given careful study in England to these subjects. The book is made up chiefly, however, of a discussion of legal and political questions, most particularly a prolonged and sweeping criticism of Gneist's doctrines concerning English local government.

A. P. WINSTON.

*Limitation légale de la durée du travail en Allemagne.* Par JOSEPH SARRAUTE. Paris: Librairie de la Société du Recueil Général des Lois et Des Arrêts, 1900. 8vo, pp. iv + 238.

NEARLY twelve years ago the German emperor somewhat dramatically proclaimed himself the champion of the laboring poor in his dominions. More than ten years have tested in a manner the group of labor laws with which the parliament followed up this declaration. Surprisingly little had at that time been accomplished in the legal regulation of work in factories and shops. Prussia had begun quite early in the century to interfere for the protection of overworked children. The discovery that boys in the factory districts were being



disqualified physically for the military service had, in part, stimulated this interference, while the law requiring attendance of children at school served as a convenient instrument for the purpose of lightening their excessive toil in the factories. Later laws excluded from the factories children under twelve, and limited the hours of older children. The Prussian regulations, as a whole, had been adopted by the new empire, but the principle of free contract had not been violated with regard to the hours of labor for adults of either sex; the weekly day of rest was enjoyed by only 42 per cent. of the employés in factories, shops, trade and transportation, and the law as to child labor was of little force for want of proper factory inspection.

The legislation of 1891 established a maximum of eleven hours per day in factory work by women, and forbade their being employed in factories at night. Rest on Sunday was prescribed for employés not only in factories, but also in shops and commercial establishments (excluding, that is, the transportation service, hotels, theaters, and other places of public entertainment). The federal council was permitted, at its discretion, to extend the factory laws also to mines, salt-works, and shops employing certain sorts of motor force, and also to regulate the hours of labor by men when this might seem necessary out of regard for health. There were the usual provisions for exceptional suspensions of the law, at the discretion of the federal council or the administrative authority.

Within a year from the enforcement of the law an association of manufacturers undertook to ascertain the industrial effects of the eleven-hour day for women. About one thousand firms failed to answer these inquiries, and it has been suggested that if these men had felt a strong opposition to the law they would have taken occasion to protest against it. In the 313 answers received there was, however, general complaint. It was said that reduction in wages and frequent dismissals of women had followed the reduction of hours. The quotations from the reports of factory inspectors, which the present work offers us, do not seem to justify this gloomy description of the law's operations. The official report as to Baden for 1892 declares that the law was regarded there with almost universal satisfaction.

No falling off in production is proven, and in any case it would be altogether out of proportion to the diminution in the hours of labor. Few employers dissent from this opinion; on the contrary, many employers in spinning and weaving have declared to us that they would welcome a further reduction to ten hours.

It is said, officially, of Alsace-Lorraine, that the reduction of hours has not at all injured the employers. The inspector of Neusalz writes that in a factory employing 180 women and 100 men the speed of the machinery was increased by one-twelfth when the hours were reduced from twelve to eleven, so that there was no effect on the output or on wages. There are reports of an increase in earnings following the reduction in hours. In some instances the inspectors' reports show less favorable results. The shortened working day for women has sometimes necessitated or induced a shortening of the hours of work for men. This appears to have happened generally in the textile industry. It is officially announced that:

The great majority of reports show that the regulations as to Sunday rest have been applied without appreciable injury to employers or workmen. . . . The hostility on the part of many employers, which manifested itself at first, has more and more tended to disappear.

The number of women employed has increased materially, while great numbers of children, being excluded from labor under the factory laws, have found employment in the domestic industries which the law does not affect.

In two instances the federal council has exercised its right to shorten the hours of labor out of regard for the health of men. In the baking industry it was found that the hours of labor were frequently excessive; boys were sometimes employed eighteen hours out of the twenty-four. An ordinance by the council accordingly fixed for bakeries a maximum working-day, but this applies only to those bakeries where work is done at night, and where there are more than three bakings per week. From an official investigation it appears that this ordinance has been by no means burdensome to the employers—or, at most, temporarily so. The council, likewise, prescribed a minimum period of eight hours rest each day for employes in the milling industry, where workmen were sometimes at their posts for twenty-four hours continuously, sleeping by snatches in the intervals of the work, and waking at the sound of a bell when a fresh supply of grist was needed.

Mr. Sarraute has based his account of the earlier legislation upon secondary sources. As to the period since 1891 his original contribution is merely the conclusion that these later acts have fairly served their purpose. This conclusion seems from his quotation of official reports to be justified, yet one must regard it with suspicion, as the

author is evidently a partisan, and prints at length the quotations calculated to confirm his inference, while the contrary evidence is seriously slighted.

A. P. W.

*The Housing Question in London: Being an Account of the Housing Work done by the Metropolitan Board of Works and the London County Council, between the years 1855 and 1900; with a summary of the Acts of Parliament under which they have worked.* Printed for the London County Council by J. Truscott & Son. London: P. S. King & Son, 1901. 8vo, pp. xvi + 381.

ONE of the most lucid, interesting, and suggestive public documents ever issued is the report of the London County Council on *The Housing Question in London*, 1855-1900, prepared under the direction of Mr. C. J. Stewart by Mr. W. J. Russell and Mr. M. H. Cox. In the space of less than four hundred pages, this report sets forth the contrasted policies of the Metropolitan Board of Works down to 1889, and of the London County Council since that date, in dealing with the housing problem.

To the American reader, not yet accustomed to regard the building of dwellings for any one class of citizens as an established function of the public authorities, this volume comes as a revelation; exhibiting the London County Council following a firmly established and comprehensive policy of building, letting, and maintaining workmen's dwellings to the extent of accommodating, up to September 1900, 32,000 persons, with schemes undertaken for accommodating 12,000 more; and printing tables setting forth in detail the expenditures of many millions of pounds sterling, together with a sinking fund calculated for the repayment of the whole outlay in sixty years, thus assuring to future generations a very valuable asset.

The utter failure of the local authorities, as set forth in this report convincingly and at length, to use powers of regulating the conditions of dwellings owned by private persons and companies and occupied by working people as tenants—powers vested in these authorities in some cases forty years ago—amounts to a demonstration of the impossibility of dealing effectively with the housing problem without active, constructive intervention of the community as a whole, after the man-

ner of London through its county council. And the equally utter failure of the same local authorities to bring the local railways to terms in the matter of adequate workmen's trains, goes far to explain the phenomenon of chronic overcrowding. But who shall explain these prolonged and terrible failures of local authorities entrusted with powers in the interest of workingmen and their families, failures the counterpart of which is only too familiar in our American cities?

Aside from the plans of work accomplished, work undertaken and now under construction, and work projected for the near future, with the very instructive and enlightening schedules of investments and income, two of the most interesting chapters in this valuable report deal with the matter of cheap trains and the still existing overcrowding of enormous areas. One startling statement in this connection which the reader would willingly have had further elucidated is the following :

That there is ample vacant space even within the county of London for the erection of new accommodations appears from the fact that the council's valuer, at the beginning of 1899, estimated the amount of building land available within the county at 14,000 acres (p. 92); [while] there is, immediately beyond the borders and yet not an hour's journey from the center of London, a quantity of land suitable for building purposes and only awaiting development by the provision of adequate means of locomotion to and from the outlying districts.

Would it not be in line with the present activities of the county council to provide such means of locomotion? And, if they were provided might not a part of the housing work now doing by the council be then undertaken by private initiative? Or is the council, perhaps, already active in this direction? On this point the report is silent.

Elsewhere the writer is quoted as follows :

The general effect of the present inequalities of taxation is to place the heaviest burden upon the least valuable land, or rather upon that portion which is occupied by buildings, since cultivated land, however valuable, is only assessed at an agricultural rental value, and unoccupied land is not liable for rates at all. The result, therefore, of the present system of local taxation appears to be a penalty on the building industry.

How much the building industry, for the benefit of the working class, might be stimulated by a thoroughgoing correction of this inversion of the reasonable order of taxation, can only be surmised, the

report giving no hint of activity on the part of the county council in the matter of recommending measures of taxation. The report leaves us to speculate, also, as to the future action of Parliament in the matter of transferring power to deal with the local railroads from the local authorities and the board of trade, which seem to have done the least possible, to the county council which manifestly stands ready to promote cheap transportation in and around London.

No student of municipal evolution can afford to neglect this chapter in the history of London, from the futile attempts in the middle of the century to deal with the insanitary districts by conferring power to regulate conditions upon the local authorities; through the second period of authorizing the metropolitan board of works to buy and clear areas, selling sites to corporations or persons contracting to build workmen's dwellings, to the present full-fledged municipal ownership of workmen's dwellings on the largest possible scale.

The usefulness of this report is enhanced by a full and clear table of contents, an alphabetical index, a list of plans, a table of statutes (beginning with 35 Eliz., c. 6, and ending with 63 and 64 Victoria, c. 59), an introduction giving "a short outline of the system which has obtained since 1855, the year in which corporate existence may be first said to have been conferred upon that part of London which had grown up outside of the walls of the ancient city," and Appendices A to J, containing much valuable material not easily included in the body of the report.

FLORENCE KELLEY.

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*The American Negro: What he was, what he is, and what he may become. A Critical and Practical Discussion.* By WILLIAM HANNIBAL THOMAS. New York: The Macmillan Company, 1901. 8vo. pp. xxvi + 440.

THE author of this work, himself partly of negro ancestry, has the courage to face clearly the fact, which so many sentimental writers on the negro problem avoid, that the real difficulty lies in the hereditary nature of the race. He perceives "the folly of saying that the negro has had but three decades of opportunity for self-culture, when, as a matter of fact, he has had an equal chance with the rest of mankind from the dawn of creation" (p. 369). Indeed, a gloomy and somewhat extreme view is presented of the character, or lack of character,

of the great mass of our negro population. Certainly the author's denunciation of prevailing degradation among the negroes seems at times overdrawn, yet unfortunately there is probably too much of truth in the picture.

The solution of the problem suggested, though not always consistently maintained, is the selective improvement of the race through the natural elimination of the more brutish and less redeemable elements which lack the stamina to adapt themselves to the moral and industrial requirements of civilized life. Two passages in which this solution is suggested are worthy of quotation :

The presence of negroes in the United States creates social conditions of importance to the present and future well-being of American ethical, economic, and political existence. That such conditions may in certain states eventually precipitate questions of supremacy between African savagery and English civilization is no idle surmise. Hence a question of immediate concern to the nation is, Shall the culture and achievement of the country be materially lessened through the continued indolence and imbecility of the negro? All historical experience shows that superior and inferior civilization cannot for a long time exist in the same social organism and be perpetuated in harmonious conjunction; one or the other will be overthrown and exterminated. The negro has nothing in word or act worthy of preservation. Each attribute of his being is obstinately and implacably arrayed against every influence that parts him from sensuous excitement; and when he gives to any uplifting movement verbal assent, he rarely translates speech into action. Wise judgment, therefore, decrees that negro pretensions ought to be suppressed and his evil propensities eradicated by every available means at command, even though such effort should end in his virtual extermination (pp. 362-363). . . . The adjustment and elimination of racial differences will finally come through sorting and sifting. The fit among us, either of black or white people, are bound to survive. The unfit will be pushed aside, but better so that the nation may live (p. 418).

Apparently the author thinks that only a small proportion of the negroes will resist the tendencies to degeneration and elimination (pp. 192-195, 365, 377). He regards the typical negro population with its present characteristics as unable morally and economically long to survive the stress of modern civilization :

The negro has thriven and increased in numbers, not because he possesses greater resistive power than other inferior races, or has acquired greater tenacity of existence here than in his native habitat. His survival is due to the fostering care with which slavery surrounded him during eight generations of servitude. Since the withdrawal of this supervision, the fact has

been made clear that the freedman is not of a hardy type, but is a perishable product who squanders his vital energies with reckless abandon (p. 411).

Various suggestions—chief of which are manual and technological education, and a plan of government allotment of farms to families on a sort of installment plan—are brought forward for the benefit of the more able, earnest, and aspiring element among the freedmen. But the real uplifting of the race is held to depend chiefly upon the effort and manfulness of the saving remnant capable of realizing the higher possibilities of life, coupled with the natural elimination of the inferior element.

The book would be vastly stronger if, in place of a vast amount of repetition and rather trivial matter with which it is largely filled, it presented more proof that it is the essentially better element among the negroes that is increasing from generation to generation. If the process of selection is working thus favorably, the race problem may solve itself very happily by the natural evolution of the *Über-Neger*; and the ultimate amalgamation of the white and negro population which the author foresees may not be an impossibility.

C. C. CLOSSON.

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*The Place of Compensation in Temperance Reform.* By C. P. SANGER, M.A. London: P. S. King & Son, 1901. Crown 8vo, pp. 136.

THIS little volume is one of the series of valuable monographs edited by Professor W. A. S. Hewins, M.A., Director of the London School of Economics and Political Science, and has for its object a critical examination of the arguments for compensation to retail liquor dealers, or, as they are commonly called in England, publicans, when their business is interfered with by temperance legislation. The monograph is written with especial reference to conditions in Great Britain. As a result of a mistaken action of Parliament in 1830, whereby free trade in liquor selling was established, the number of licenses issued, it is generally admitted, was excessive. This action was not reversed until 1869, when for the renewal of the licenses issued up to that time the strongest guarantee was given. Since then, through unwise administration of the liquor laws by the justices, the situation has not materially improved. In the meantime there has been considerable agitation by the temperance party, on the one hand, for a

reduction in the number of beer houses, and on the other hand, numerous proposals for compensation in case of reduction have been made by conservative members in the English Parliament during the last twenty-five or thirty years. These are the facts which appear to have called forth the present essay.

The scope of the essay is comprehensive. In the first place there is a discussion of the general argument for compensation to vested interests when legislature finds it necessary for the public good to deprive an individual or a class of individuals of their property, their legal rights, their means of livelihood, or of a reasonable expectation of continuance in a private business or enterprise. This is followed by an examination of various cases where compensation has been given in England during the last hundred years, which illustrate the general argument. In the third place, the special features of property in a liquor license are described; and then follows an examination of precedents for and against compensation in foreign countries, especially in the British Colonies and the United States, with a view of possibly throwing some light on the practice of English-speaking people elsewhere. Next comes an account of the most recent proposals for compensation which have been made in Parliament, together with the opinions of English statesmen, which are quoted to show the points of agreement and those of difference that exist in the minds of the community on the subject. Finally the author sums up the conclusions which he draws from the general inquiry.

In the introduction to his inquiry Mr. Sanger lays down the proposition that "in a modern, civilized state it is generally accepted as a political principle, that the interests of the individual must be subordinated to, or even disregarded in favor of, the public interest," and that when as a deduction from this principle the legislature finds it necessary to deprive any member or members of the community of their property or their legal rights, the question arises, in the first place, whether it is not also the interest of the community to compensate the individuals for their loss; and, in the second place, whether, apart from the self-interest of the community, "justice does not require that such individuals should be compensated." In short, whether it is not both expedient and just that the vested interests of private individuals should be indemnified for loss through legislative innovations. The grounds on which, in general, compensation is



granted are found to be variously stated: vested rights or interests, legitimate expectations, justice, and, more rarely, political necessity or expediency. The first three grounds imply more or less moral obligation on the part of the state; the last implies nothing moral *per se*. From the utilitarian standpoint, however, as the author points out, there is after all little difference "between the statement that the legislature *ought* to compensate vested interests and the statement that it is *expedient* that it should compensate them." And all these grounds may really be summed up under the general head of vested rights or interests. After an examination of the political theories of Austin, Bentham, and Sidgwick, the author concludes that the true test of a vested interest is the "non-disappointment" principle; that is, a right or an interest in the exercise of which the owner or possessor has been led by legislative action or by custom to believe shall continue unimpaired, at times including rights which have been sanctioned by custom even though they were legally prohibited. And the amount of compensation for any injury to such rights is determined by the amount of the disappointment experienced and the depreciation in the market value of the right as a result of legislative interference. The plea for political necessity or expediency is made to rest mainly on economic grounds. Uncertainty impairs greatly the forces of production. The community must guarantee without distinction some degree of certainty for the future in rights and expectations or compensate for loss where discrimination is made, on the general ground that stability and security of property is of the utmost importance in human affairs. And so, stated in this form, the argument appeals the more strongly to the self-interest of the general community. In support of this contention the author cites numerous historical precedents. Among others, the Lands Consolidation Acts (1845), which provided for full compensation when private lands were taken for public uses, and the provisions made by the English government during the early thirties, when the abolition of slavery was brought about in the colonies. Again, injuries through the abolition of proctors in the courts in 1857, and the loss of employment to the holders of archbishoprics, bishoprics, benefices, etc., through the disestablishment of the Irish church in 1869, were all compensated. In all the cases cited, with one or two exceptions, it is shown that compensation has been given, not only when real property has been taken away or valuable monopolies destroyed, but also when expectations of employment have been damaged.

After having established his general argument for compensation Mr. Sanger inquires whether the holder of a liquor license has the same claim to compensation, in case of injury, as have holders of other forms of property or rights; and to that end he first examines the special features of the position of a license-holder. These special features are as follows: First, the legal position. A liquor license lasts for one year only, but the legislature appears to contemplate a renewal of the license in the ordinary course. In the case of the renewal of licenses of beer-houses which were in existence in 1869, a license cannot be refused except for bad character or misconduct, for keeping a disorderly house, or because the applicant is not duly qualified as is required by law. In the case of beer or liquor houses which have been established since 1869 the renewal of a license rests with the discretion of the justices. Second, although licenses are granted for only one year, the probability of renewal is very high, as is shown (1) by legal decisions, (2) by the rates of insurance against loss of license, it being a very common thing in England for brewers and distillers to insure holders of licenses against loss in case of failure of renewal, (3) by statistics which show the number of licenses actually granted annually, and (4) by market values of licenses. Third, licensed premises are generally heavily mortgaged by brewers and distillers, and so if a license failed of renewal the result would be loss not only to the licensee but to the brewers and distillers as well. Fourth, the retail liquor interests are large and widespread. Moreover, owing to the development of joint stock companies investments in brewing and distilling establishments have become very widely diffused throughout the population; and so any injury to the interests of retail dealers would also affect, indirectly, the interests of stockholders in brewing and distilling plants.

From what is said by the author on this phase of the subject it is clear that the retail liquor interests in England come well within the definition of "vested interests" or "vested rights;" that an extraordinary degree of disappointment would be felt by a very numerous class of persons who have made large investments with the full sanction of law and custom and in the expectation that the returns on their investments will not be impaired. The author concludes, and rightly, that any innovation which would cause an unexpected loss to these interests ought also to provide proper indemnity for the loss, even if only for the purpose of assuring the general community that the legislature

proposes to respect vested interests which have become established under legal protection or have been permitted by custom.

When the author comes to examine precedents for compensations to liquor interests in the English colonies and the United States, however, he finds next to nothing of the kind there; while in the United States numerous precedents against compensation may be found, and those, of course, in the states where prohibitory laws have been enacted or where local option obtains; that is, no compensation was provided for when these prohibitory laws were enacted. In several instances our supreme court has decided that prohibition without compensation is not illegal, and some of our states have enacted that liquor selling is a common nuisance; so that to a considerable extent the grounds for compensation have been destroyed. Hence the author concludes that in the other countries where legal and other conditions are so different from those in England the precedents offer no guidance for action in England. He, therefore, turns again to England to examine the proposals which have been made for compensation there in order to discover what the trend of English thought has been on the subject.

Since 1870 some seven different proposals for compensation have been made in the English Parliament. Some of these provided for the determination of licenses only after a certain term of years, in order to save license-holders from loss by giving them time to withdraw their capital from the liquor business and reinvest it in some other enterprise; and some provided for an out and out money compensation. "These different proposals show," the author states, "that in general it is thought advisable to give some compensation." And this view is supported by the opinions, among others, of statesmen like Mr. Gladstone and Mr. Chamberlain, and of Professor Sidgwick. The following opinion expressed by Mr. Chamberlain and quoted by Mr. Sanger is of interest as showing the attitude of the English mind on the subject:

We have compensated every conceivable interest in this country whenever the well-being of the community has necessitated interference. We compensated proctors for abandoning their privilege of delay in legal procedure; we compensated the officers of the army for surrendering the admittedly illegal system of purchase; . . . we are actually at this day [May, 1876] compensating the heirs of a man who died 200 years ago, for his losses in the service of the most profligate monarch our country has ever known. Their case [that of the publicans] is the more entitled to compensation

because they may plausibly urge that they have been tempted into the trade by past legislation, while many of them can show that they have bought with hard cash their share of that monopoly, licensed by the state, of which it is now proposed to deprive them.

The author's conclusion to his inquiry is that a liquor license represents a vested interest, and that the fact that the rights or interests are "*mala in se* or *mala prohibita* is not sufficient to debar the claim to compensation." And as to the actual position of a license-holder in England at the present time he concludes: "(1) That the legislature and the courts of law contemplate renewal as the normal course of events; (2) that this expectation of renewal is at the present time a practical certainty; (3) that the amount of capital invested on the strength of this expectation is very large and [is] distributed widely throughout the community. There is, therefore, a very strong *prima facie* case for compensation."

The essay is of value as showing just what the feeling of the English people is with reference to the question of compensation for injury to vested rights, and what claim in particular liquor license-holders have for indemnity in case the legislature should interfere with their business. The extreme temperance party in England, as is usually the case in America, is opposed to any form of compensation; and yet in view of all the facts it is more than probable that no real headway will be made toward reducing the number of licenses in England or in any other way effecting permanent temperance reform there until the right to compensation as insisted upon by Mr. Sanger is recognized. A bill embodying this principle in a satisfactory way would not only have the effect of lessening the opposition of the liquor interests, but would probably secure sufficient support from other vested interests to become law; and hence a real step toward improving the present situation would be made.

Mr. Sanger has done well the work he laid out for himself. The essay is written in a clear, concise style and in a thoroughly scientific spirit, and is a real contribution to the literature on temperance reform.

J. E. GEORGE.

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*Social Control: A Survey of the Foundations of Order.* By EDWARD ALSWORTH ROSS. New York: The Macmillan Co., 1901. 8vo, pp. 463.

SOCIOLOGISTS are busily occupied today putting interrogation points to the philosophy of individualism, and they are very far away

indeed from accepting as truisms any of the fundamental theses of that doctrine. They are not at all disposed to admit that "Each is the proper guardian of his own health, whether bodily, or mental or spiritual," for the simple reason that in the health of each they conceive to be involved inextricably the health of others, both of the living and of those yet unborn. The individual's health, bodily, mental and spiritual, is conceived to be an inheritance and a trust in which society, as sponsor for future generations, has a vital interest. No more are sociologists disposed to grant that it is in the least self-evident that "Mankind are greater gainers by suffering each other to live as seems good to themselves, than by compelling each to live as seems good to the rest." Mill himself perceived clearly that there is an interference with individual freedom which is legitimate and necessary, although he thought that such interference should be reduced to a minimum. Many who agree with him perfectly in that believe nevertheless that the amount of such interference requisite today is greater than he believed it to be. In any event one great concern of social science at the present time is to determine exactly the "limit to the legitimate interference of collective opinion with individual independence," to determine, that is to say, the proper sphere of social interference. It is to this problem that Dr. Ross has devoted his attention.

With the rise of democracy, obviously, new sorts of social constraint are put upon the individual, and social interference with his freedom becomes a very different sort of thing from government interference. It is coming to be realized that these new constraints may very easily develop into a kind of social tyranny. "Like other tyrannies," wrote Mill, again in the essay on Liberty, "the tyranny of the majority was at first, and is still, vulgarly held in dread, chiefly as operating through the acts of the public authorities. But reflecting persons perceived that when society is itself the tyrant—society collectively, over the separate individuals who compose it—its means of tyrannizing are not restricted to the acts which it may do by the hands of its political functionaries. Society can and does execute its own mandates: and if it issues wrong mandates instead of right, or any mandates at all in things with which it ought not to meddle, it practices a social tyranny more formidable than many kinds of political oppression. . . ." If in this selection we substitute for the idea of social tyranny, the idea of "social control" we have the fundamental thesis of what may be styled the new sociology, which is not, in its fairest forms, a special plea for a greater

exercise of liberty on the part of the individual, nor on the other hand, for a greater exercise of authority by society, but is intensely interested just now in the essential nature, extent, and origin of those constraints under which the individual lives in a civilized community. In the perfect understanding of these constraints, it is felt, lies the surest safeguard against a perversion or degeneration into some form of social tyranny of that social control and exercise of authority which is adequate and necessary—a *sine qua non* of “human development in its richest diversity.” Dr. Ross’s treatise is a decidedly creditable contribution to our philosophy of social conduct. In it he has undertaken and achieved a scientific analysis of those influences by which men living in communities are brought into subservience to social ideals, more or less highly conventionalized.

The scope of his treatise he defines within the general field of social psychology, which itself lies within the province of sociology, and embraces that “branch of knowledge that deals with the psychic interplay between man and his environing society.” In his investigation he restricts himself further to those forms of social domination that are conscious and purposeful, as distinct from more subtle and illusive influences, such as are manifested, for example, in the instinctive workings of the mob-mind, and in the vogue of fashions, customs, and conventions and public opinion. “In this book,” he says, “I seek to determine how far the order we see all about us is due to influences that reach men and women from without, that is, *social* influences,” and he, therefore, conceives his task to be “first, to separate the individual’s contribution to social order from that of society, and, second, to bring to light everything that is contained in this social contribution.” “It is investigation of the kind I have attempted in this book,” he observes, in a note appended to his concluding chapter, “that will enable society to go about the business of control in a scientific way.”

The heroic conception of society going about its business of control is, perhaps, a bit academic, and while some of Dr. Ross’s readers may have no difficulty in conceiving society so occupied, others, I am sure, will feel that something of a strain is put upon their imagination, or at least that the society which controls is not always sufficiently well defined in their own minds, whether or not it is so in Dr. Ross’s. The social entity, or *ego*, or self, becomes at times intangible and illusory—we lose our grip upon it. Perhaps it should be said rather that the very excellence of Dr. Ross’s treatment—which is in general excep-

tionally concrete and positive, in a word, scientific—itself exposes the inadequacy of conventional sociological conceptions about society. We see that the social organism is not a simple one, actuated by any single impulse, or feeling or instinct of gregariousness, or by any simple form of consciousness whatever. It is rather a plexus of more or less co-ordinate social ganglia, through which every species of human feeling vibrates more or less freely. It cannot, therefore, be so simply defined and explained as some sociologists have thought. Social forces cannot be reduced to any simple dynamic impulse. To posit back of social phenomena a “power not ourselves” that makes for good or evil, or indifferently for either, may be excellent poetry, but it is not satisfying when used as a working hypothesis in social science, except when used frankly to signify what we don't know about social forces.

It is all the more unnecessary to involve our conceptions of society in any kind of mysticism now that sociology has achieved so excellent an analysis as it has of social influences, judgments, and more or less conventionalized habits of community-feeling and community-thinking; and has explained how from generation to generation certain social dicta come to acquire overmastering prestige in the conventionalities of art, in the promulgation of laws, or in the blind acceptance of creeds, and in the fixing of social standards generally. Social judgments so established seem to emanate from some high authority, and in the course of time they acquire a momentum of their own by virtue of which they bear down opposition, and they are endowed with a sort of personality or divinity. Now and then, however, when this veil of mysticism is thrown off, or the clouds lift, one sees that the “society which controls” is after all nothing more nor less than the registered judgments of generations past, or of some ascendant social class, that the source of social forces is not at all the gods assembled on Mt. Olympus, but some petty social kitchen-cabinet where Tom, Dick and Harry have met together for their own or the common weal. The hypnotic influence of mysticism fails for the moment.

Society [says Dr. Ross in a moment of extreme frankness], society is of course a kind of fiction. There is nothing to it after all, but people affecting one another in various ways. The thesis of this book is that from the interactions of individuals and generations there emerges a kind of collective mind evincing itself in living ideals, conventions, dogmas, institutions, and religious sentiments, which are more or less happily adapted to the task of safeguarding the collective welfare from the ravages of egoism.

This "kind of collective mind" has become of late a very interesting "kind of fiction." Sociologists are writing a great deal of it, and social psychology, which undertakes to expound the workings of the social mind, has been constituted a great department of social science. The idea came into the science by way of analogy, and came gradually to be accepted as a convenient working hypothesis. Today, however, it appears often to be taken more literally; so that one can hardly determine whether this sociological bread and wine has in fact become real flesh and blood, or not. Certainly, the phrase has not been used always with scientific accuracy. Writers began to use it freely before they had attained any refinement in its definition; and this is no less true of that other phrase—now common enough, too, since its exploitation by Le Bon and other recent writers—namely, the "soul" of a people, or race, or community. Although there has been a vast deal more talking about the social mind and the social soul, than there has been done clear thinking, these conceptions in themselves, as they have been elaborated, form an interesting sequence, when related to that protracted discussion which has taken place over the question, Is society an organism, and, if so, what kind of an organism is it—physical or psychic, or psycho-physical. Sociologists today are happily less occupied than formerly with writing dithyrambic treatises on the nature of the social organism; they are subjecting social relations, customs, and institutions to critical scientific analysis, and leaving the social organism to emerge, if it will, in the course of time, out of these analyses. Of this latter sort of writing Dr. Ross's treatise is a gratifying instance.

In the recent evolution of social science, however, the time-worn analogy of society to an organism has received considerable elaboration. Of course in formal logic one can prove pretty conclusively that there is no social entity back of the analogy, that our conception is a mere phantom, the figment of an over-sensitive, or over-excited imagination, projected upon, not bodied forth in social institutions. You cannot put forth your hand and touch the living body of society, any more than Hamlet could the ghost of his own father. All your intellectual and moral converse is with men individually, not with a collective mind or soul. But formal logic is often fallacious. It has proved, for example, that Achilles could never overtake the tortoise, that he could not move at all. By a line of reasoning identical with the above, one may demonstrate that there can be no such entity as a human



being, just as easily as one can demonstrate the non-existence of a social being. Conceive, for example, a protoplasmic cell interested in his own social environment. He might reason thus :

I neither feel, nor touch, nor hold intercourse with a human being. All my converse is with other protoplasmics, more or less differentiated, to be sure, but cells none the less for all that. Some of them do more thinking than others, who do more digesting, but there can be no life outside the cell. Therefore, there can be no such creature or organism as a human being. That is a figment of my imagination which I am carrying over by analogy from my own complete tangible organism.

The logic here is fair, and as conclusive as is that applied to society itself, and the same sort of reasoning may obviously be indefinitely extended. One may as easily demonstrate the inconceivability of the protoplasmic cell, with its psychic and plasmic elements, as of the human being. Clearly what we are demonstrating all the while is our own inability to conceive how the psychic influences get themselves materialized into what we call an organism. The individual *ego* which we each superpose upon our protoplasmic and other cells, by virtue of which endowment they become human, presents to psychologists and philosophers exactly the same mystery that is presented to the sociologist in conceiving a social *ego*, self, or "power not ourselves," or social "spirit," "soul," or "mind ;" and when psychologists have explained how mind is related to brain-matter, they will have solved as well the mystery underlying social reactions. When biologists can explain how nerve force is conditioned in nerve and brain tissues, sociologists will undoubtedly know as well how social customs, habits, and modes of social thinking, feeling, and acting are conditioned in the social organism.

Social science began by taking over and applying to social phenomena the principles of theology. Social order, the multiplication and destiny of the human race upon the earth were conceived to be a divine order, subject to and determined by an overruling and freely intervening providence. When the advance of the natural sciences began to attack this divine order with its supernatural providences, and to explain them away as a natural order and sequence, social science became a natural science, as it appears, for example, in the writings of such men as Quetelet, Comte, and Ward, with their social physics, social statics, social dynamics, and their whole terminology borrowed from the physical sciences. Then the social order became biological,

organic, and living, and more recently still, a further genesis appears to have taken place in the development of the psychic and metaphysical character of social reactions. So that to the natural science of social physics has succeeded a psychic science of the social mind, and an ethical science of the social soul. Here, then, is the social organism complete, body, mind, and soul.

It cannot be said, however, that social science proper is as yet fully conscious of this whole nature of society. The conception is but dimly foreshadowed. Writers of Dr. Ross's school are creating a social psychology, just as earlier writers created a science of social theology, of social physics, and of social biology; but the science of sociology itself does not yet manifest any but rudimentary and unstable lines of organic structure. It is in a formless, pre-natal state. New contributions add to the volume of literature, without extending the principles of the science. So that the sociologist has especial need to bear in mind that somewhat sententious admonition of Marcus Aurelius Antonius, which Dr. Ross himself quotes in another connection: "This thou must always bear in mind, what is the nature of the whole, and what is my nature, and how this is related to that." A little keener sense of the nature of the whole would give to the science of sociology a *selbständigkeit* which it now conspicuously lacks. It is today as a science, distinctly not on its own roots. It is a graft upon other sciences, more or less closely allied to it, natural, ethical, or social. The favorite growth upon which to graft sociological scions just at present appears to be psychology. One can hardly take up a sociological treatise that is not full of cross references to recent works in psychology; but other sciences have made their contributions too. The great sociologists—pardon the Hibernianism—have always been physicists, or biologists, or philosophers, or lawyers, or doctors, or statesmen, or men of affairs, and today they are psychologists—not regular practitioners at all. Even in literature the writing of social science, or what passes for that, is made a fine art. We have a Jean Marie Guyan with his *L'art au point de vue sociologique*, but more frequently it is sociology as viewed from art, or as the doctor, or lawyer, or merchant writes it. Erudite and valuable as these contributions to social science are, their voluminousness and absence of any common focal center, has obscured the true perspective and synthesis of the science proper. Meantime the regular practitioners stand with their eyes somewhat averted from the life about them; they have turned their thoughts backward for the

time, and are seeking with a diligence which is certainly commendable, among primitive peoples and societies, even in insect communities, the fundamental principles of their science. Here they find social problems simpler, more easily comprehended, explained and handled. Each writer strives to get back farther into some more remote, as yet unexploited society, or to discover a new gregarious species of animal or insect, and all the while society is reorganizing, re-establishing itself, reforming, developing, and generating new social forces. The social problems of today are not those of yesterday, much less of some primitive people or savage tribe. But sociologists have been bitten, as the Chinese might say, by the evolution spider. They are seeking origins, and lo! while they are following back the generation of some social filament, the thread is broken, and that particular line of investigation ceases to have any pull on affairs today. Their sociology degenerates into a folk-lore of no great present scientific purport. Society has taken new roots, and its vital forces have new sources. So that sociology, where it is not a graft upon some allied science, is today archaic—a reversionary and scrubby growth. It cannot, therefore, be urged as a defect in Dr. Ross's exposition that his philosophy of social control is a development rather of psychology than of sociology proper; that it is a contribution to, rather than a development of social science, but this may be noted as a matter of fact.

The whole duty of social science is to write down and expound what has been happily styled the "logic of events," to seek out and proclaim the whole truth about social institutions, customs, and creeds. One need have no fear whatever that any evil will result from "lifting the veil from those sacred recesses where are prepared the convictions and sentiments by which society holds together." Perhaps the most serious charge that can be brought against the present treatise on social control is that there is, underlying considerable portions of it, an assumption which is purely gratuitous, the assumption, namely, that the art of social control is a species of black art.

In the taming of men [says our author] there must be provided coil after coil to entangle the unruly one. Man-quellers must use snares as well as leading strings, will-o'-the-wisps as well as lanterns. The truth by all means if it will promote obedience, but in any case obedience! Hence, coupled with the social endeavor to clarify the individual's judgment on certain points, we detect an unmistakable effort to confuse, befuddle, and mislead it on other

points. Taking a leaf from the policy of nature, society learns the tricks of deception.

And so our author undertakes to examine, not only social creeds, but "the films, veils, hidden mirrors, and half-lights by which men are duped as to what lies nearest them—their own experience. This time we shall see men led captive, not by dogmas concerning a world beyond experience, but by artfully fostered misconceptions of the pains, satisfactions, and values lying under their very noses. For this the fitting terms is not *control by belief*, but *control by illusion*." And having determined upon getting behind the scenes with his reader, and upon exposing these illusions, our author, in his concluding chapter, turns apologist:

I confess that no light responsibility is laid upon the investigator who explores the mysterious processes that take place in the soul of a people, and dissects in public the ideals and affirmations elaborated in the social mind. The fact of control is, in good sooth, no gospel to be preached abroad with allegory and parable, with bold type and scare headlines. The secret of order is not to be bawled from every house-top. The wise sociologist will show religion a consideration it has rarely met with from the naturalist. He will venerate a moral system too much to uncover its nakedness.

And, again:

One who learns why society is urging him into the straight and narrow way will resist its pressure. One who sees clearly how he is controlled will thenceforth be emancipated. To betray the secrets of ascendancy is to forearm the individual in his struggle with society. Therefore, "the wise sociologist" will address himself to teachers, clergymen, editors, law-makers, and judges, who wield the instruments of control; to poets, artists, thinkers, and educators, who guide the human caravan across the waste.

This is cynicism of the deepest dye, if taken seriously, and smacks a bit of melodrama whether taken so or not. The assumption that social control, even of bad men, is a sort of black art, and that the wise sociologist must have a care lest he reveal its deep mysteries is simply gratuitous. It is the sort of mediæval mysticism that fostered astrology in the dark ages, and conceived a great bugaboo in the true science of astronomy. There is no such snake in the grass as our author conceives. The "mysterious processes that take place in the soul of a people" are not, perhaps, well calculated for "bold type and scare headlines," but if anyone, particularly if a wise sociologist were disposed to "bawl the secret of order from the house-top" even, there

could be no danger at all in doing so. The wise sociologist will address himself to the leaders in thought and action, not because these are his confrères or "accomplices" in any sort of black art of social control, but because they are intelligent. He will show religion consideration, and will venerate moral systems, not because he fears to "subvert all control that does not rest upon force," by showing forth "faiths and moralities in all their nakedness as so many ways of luring a man from the pursuit of his individual welfare," but for the very simple and obvious reason that he deems such faiths worthy of respect; to be subversive of social order is by no means the essential nature of those social faiths and moralities which are worth preserving—other faiths he is bent upon exposing in all their nakedness, and to death. One who learns how and sees why he is controlled for social ends will not on that account rise up against society; he is not by being made more intelligent thereby made anti-social. In a word, the true gospel of social control is not subversive; it is only a false gospel that should not be preached in the open air, and such a gospel should not be preached at all. In submitting to social constraint men are yielding to "that logic of events," writ large, which, according to Mr. Kennan, "convinced honest men and criminals [in the mining camps of California] that unless they secured life and property within the limits of the camp, they were all likely to starve to death in the course of the winter." (Quoted by Dr. Ross.) Social control is grounded in this logic of events, where it is well grounded, and when grounded in illusions the sooner it is thrown off the better. Certainly sociologists should not conspire to keep up the illusions.

Dr. Ross's judgments, be it said in conclusion, are always sane. He is fearless in his exposition of social shams, and where his exposition appears somewhat cynical, it is perhaps due to a temperamental aversion to moral priggishness. The train of thought is always clear, the analyses of social conventions are accurate, and the whole treatment original. Our author does not pretend to have said the last word concerning social control. He disclaims any sort of predilection for his own ideas. "I am not," he says, "wedded to my hypotheses nor enamoured of my conclusions"—and in truth there is comparatively little hobby-horsing in his entire book, which impresses one as being in the best sense of the word scientific.

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## FREIGHT-RATES ON ARGENTINE AND NORTH AMERICAN WHEAT.

THE source of the supply of foreign wheat consumed by western Europe has undergone a considerable change in the last decade. The development of the sixties of the nineteenth century was characterized by the first appearance of large masses of transoceanic wheat, coming from the United States, and that of the seventies and eighties by the advent of British India in the world's wheat market as a competitor of the United States and Russia, which, however, were steadily increasing in importance as exporters. The most striking feature of the nineties was the sudden and enormous influx of Argentine wheat and the decrease in the imports of Indian wheat, as a consequence of which the United States and Argentina are today the main factors in the transoceanic wheat supply of western Europe. The last few years have further shown that the South American Republic with which the United States and Russia have now to compete is a much more formidable adversary than was ever their Asiatic competitor. In no year did the exports from British India reach or even closely approach those from Russia or the United States, though the exports of wheat from Argentina were in 1899 and in

1900 about as large as those from Russia. And while up to the present time the exports from the United States have regularly exceeded and generally very considerably exceeded those from Argentina, there is more than a possibility that this state of affairs may be reversed. Among all the factors which will determine the course of this development perhaps the most important will be the cost of transportation of the wheat from the Argentine and the United States farms to western Europe. This fact is more or less recognized by all students of the question, but as yet there does not exist any satisfactory comparative study of the freight rates and commercial charges on Argentine and North American wheat. The aim of the following study is to discuss that part of the costs of transportation, which is involved in the transportation proper, and to compare the freight charges on wheat from the Argentine farm and from that in the United States to the local railway station, from there to the ocean and thence to the European market. But in order better to appreciate the amount of traffic involved it will be well perhaps first to consider the total output and the exports of wheat for both countries.

The share which the Argentine Republic had in the world's wheat production in the last decade may be seen from the following table which gives for the last two quinquennial periods the average yearly crop of all the countries having an average annual output of more than fifty million bushels.

With 2.27 per cent., or one forty-fourth of the world's wheat production, Argentina kept in the last decade the eleventh position among the wheat producing countries. In the quinquennial period 1891 to 1895 it occupied the twelfth rank, but went in the period 1896 to 1900 to the tenth, its wheat crop surpassing that of Roumania and Great Britain. In the average of the two years 1899 and 1900 it even occupied the eighth rank, being ahead of Asiatic Russia and Spain.

But a consideration of the production alone cannot give an adequate idea of the importance of Argentina in the world's wheat market. On account of its small population, which in fact

COUNTRIES.	AVERAGE ANNUAL CROP IN 1,000 BUSHELS.			PERCENTAGE.
	1891-95. <sup>1</sup>	1896-1900. <sup>2</sup>	1891-1900.	1891-1900.
United States.....	490,246	540,503	515,375	20.00
European Russia.....	369,632	370,043	369,838	14.35
France.....	299,563	324,737	312,150	12.12
British India.....	247,982	215,186	231,584	8.99
Hungary.....	148,017	127,701	137,859	5.35
Italy.....	126,427	125,432	125,930	4.89
Germany.....	107,846	132,126	119,986	4.66
Spain.....	87,144	98,942	93,043	3.61
Asiatic Russia.....	77,332	85,885	81,608	3.17
Great Britain.....	56,999	62,755	59,877	2.32
Argentina.....	53,000	63,939	58,469	2.27
Roumania.....	57,053	49, 25	53,389	2.07
Canada.....	51,406	53,913	52,660	2.04
All other countries.....	372,787	356,729	364,757	14.16
Total.....	2,545,434	2,607,616	2,576,525	100.00

is less numerous than that of any of the other twelve countries for which the production is given in the above table, it has a smaller need of wheat for home consumption than any of the other countries. According to the estimates made by the Argentine Department of Agriculture<sup>3</sup> for the years 1890-91 to 1898-9, only about 31 per cent. of the wheat crop was consumed within the country, and 9 per cent. was used for seed, while in the United States not more than one-third of the total crop of the same years was available for export.<sup>4</sup> As a consequence of this fact, the present export of wheat from Argentina, as indicated before, is only exceeded by that of the United States and Russia. In the eighties the combined exports of wheat and wheat flour from Argentina were still surpassed by those from Austria-Hungary, Roumania, Canada, and British India. But

<sup>1</sup> Cf. *Yearbook of the United States Department of Agriculture*, 1895, p. 530; 1897, pp. 717 f.; 1898, pp. 686 f.; 1899, pp. 776 f.

<sup>2</sup> Cf. *idem*, 1900, pp. 763 f. and *Annual Statistical Report of the New York Produce Exchange for the year 1900* (prepared by I. C. Brown), pp. 45 f. (From *Reports of the U. S. Dept. of Agriculture*, revised April, 1901).

<sup>3</sup> *Bóletin de Agricultura y Ganaderia*, Año I, Núm. 12, July 1, 1901, p. 41.

<sup>4</sup> Cf. *Yearbook of the United States Department of Agriculture*, 1900, p. 168, and *Statistical Abstract of the United States*, 1901, p. 333.



Years.	WHEAT IN 1,000 BUSHEL.			WHEAT FLOUR IN 1,000 BARRELS.		
	United States. <sup>1</sup>	Russia. <sup>2</sup>	Argentina. <sup>3</sup>	United States. <sup>1</sup>	Russia. <sup>2</sup>	Argentina. <sup>3</sup>
1876	55,073	55,641	1	3,936	751	4
1877	40,326	52,139	7	3,344	460	2
1878	72,405	103,949	94	3,947	993	34
1879	122,354	83,801	94	5,630	684	17
1880	153,253	36,972	43	6,011	437	16
1881	150,565	49,511	6	7,946	450	14
1882	95,272	77,242	63	5,916	830	6
1883	106,386	84,985	2,232	9,206	268	54
1884	70,349	68,902	3,987	9,152	609	42
1885	84,654	93,326	2,884	10,648	863	84
1886	57,759	55,078	1,391	8,179	679	59
1887	101,972	81,402	8,740	11,518	727	57
1888	65,789	129,237	6,574	11,964	768	72
1889	46,414	114,682	838	9,375	697	38
1890	54,388	109,590	12,048	12,232	685	135
1891	55,132	106,150	14,534	11,344	689	79
1892	157,280	49,086	17,273	15,197	475	212
1893	117,121	94,029	37,043	16,620	588	427
1894	88,415	123,224	59,093	16,860	694	458
1895	76,103	142,678	37,121	15,269	772	607
1896	60,650	132,161	19,547	14,621	697	582
1897	79,562	128,385	3,742	14,570	694	466
1898	148,231	106,860	23,705	15,350	832	359
1899	139,433	64,466	62,904	18,486	707	669
1900	101,950	70,264	70,903	18,699	671	576
1901	132,061	83,293	33,227	18,651	679	807

<sup>1</sup> For the years 1876 to 1899 cf. *Bureau of Statistics, Monthly Summary of Commerce and Finance of the United States*, January, 1900, p. 2022; for 1900 and 1901, *idem*, June, 1901, pp. 3142 f. The figures refer to fiscal years, ending June 30, 1876, etc.

<sup>2</sup> The figures for wheat for the years 1876 to 1896 are calculated from *Étude statistique sur le commerce extérieur de la Russie*, par B. Pokrowsky, chef de la section de statistique du Département des Douanes (St. Petersburg, 1900), p. 7; for flour, from *Das Getreide im Weltverkehr*, Vol. I, p. 196; all figures for 1897 to 1899 from *Statistical Abstract for the principal and other Foreign Countries*, 27th number, pp. 74 f.; for 1900 and 1901, from Imperial Russian Ministry of Finances, Division of Customs, *Foreign Trade over the European Frontier*, St. Petersburg, 1902 (Russian), p. 8. The figures for 1900 and 1901, include only the exports over the European frontier. The bushel of wheat is counted equal to 60 pounds, the barrel of flour equal to 196 pounds. All figures refer to calendar years.

<sup>3</sup> For 1876 to 1897 calculated from *Anuario de la Dirección general de estadística correspondiente al año 1897*, Tomo I, pp. 310 f.; for 1898, *ibid.*, 1898, Tomo I, pp. 322 f.; for 1899 *ibid.*, 1899, Tomo I, pp. 213, 215; for 1900, *ibid.*, 1900, Tomo I, pp. 217, 220; for 1901 from Dirección general de estadística de la nación. *El comercio exterior Argentino*, año 1901, Núm. 112, p. 96. The bushel of wheat is counted equal to 60 pounds, the barrel of flour equal to 196 pounds. The figures refer to calendar years.

the Argentine exports surpassed those of Canada since 1890, those of Austria-Hungary in every year since 1891, those of Roumania and British India generally since 1893.<sup>1</sup> The total amount of domestic wheat and wheat flour exported in the last quarter of a century from the three now leading countries in the world's wheat market will be seen from the table on opposite page.

The average annual export of domestic wheat in the last decade (1891 to 1900) from the United States and Russia amounted to 102,000,000 bushels each, and from Argentina to 35,000,000 bushels; the average annual export of domestic wheat flour from the United States to 15,700,000 barrels, from Russia to 682,000, from Argentina to 444,000. If one barrel of flour is considered equal to  $4\frac{1}{2}$  bushels of wheat, the combined exports of wheat and wheat flour from the United States amounted to about 173,000,000 bushels, from Russia to about 105,000,000, from Argentina to about 37,000,000 bushels.

The differences in the average price of the wheat imported from these three countries to England in the last five years will be seen from the following table:<sup>2</sup>

With the exception of the year 1898, when the price for Argentine wheat in the English market was higher than the average price for the wheat coming from the United States and Russia, the Argentine wheat cost in every year less than the average of all imported wheat, and less than that from the United States and Russia.

As almost all the export wheat of the United States and most of that grown in Argentina is hauled from the farms to the railroad, very little being carried directly to a shipping point, a short glance may first be taken at the development of the railways in both countries.

<sup>1</sup> Cf. for details, *Das Getreide im Weltverkehr*. Vom k. k. Ackerbauministerium vorbereitete Materialien für die Enquête über den börsenmässigen Terminhandel mit landwirtschaftlichen Produkten, Vol. I, *Statistische Tabellen über Produktion, Handel, Consum, Preise, Frachtsätze und Kündigungen* (Vienna, 1900).

<sup>2</sup> Calculated from *Boletín de Agricultura y Ganadería, Año I, núm. 14* (August 1, 1901), p. 61.

COUNTRIES FROM WHICH IMPORTED.	AVERAGE PRICE OF THE BUSHEL OF WHEAT <sup>1</sup> IN CENTS.				
	1896.	1897.	1898.	1899.	1900.
Argentina.....	76.3	89.0	114.1	83.1	85.7
United States (Atlantic Ports).....	82.6	100.4	105.2	89.2	90.5
United States (Pacific Ports).....	82.1	94.3	106.2	86.9	88.5
Russia (Northern Ports).....	83.9	95.8	111.5	89.5	88.7
Russia (Southern Ports).....	77.8	93.5	100.9	86.7	88.7
Average of all countries <sup>2</sup> .....	80.6	97.2	104.4	87.2	88.7

The first railway line in Argentina was opened on August 30, 1857, with a total length of 6 miles, nearly thirty years after the opening of the first road in the United States, which by 1857 had nearly 25,000 miles in operation. By the end of 1870, 455 miles were in operation in Argentina against 116 times that length in the United States, which had 52,922 miles. By the end of 1880, Argentina counted 1,563 miles, the United States 93,262, or 60 times as much; by the end of 1890, Argentina had 5,861 miles against 166,703, or 28 times as much, in the United States; by the end of 1900, Argentina had 10,292 miles, the United States 19 times as much, or exactly 194,321 miles.<sup>3</sup> The traffic and the density of the railways in recent years in Argentina and in the United States will be seen from the following table :

While the number of miles of railway compared with the population is not much larger in the United States than in

<sup>1</sup>The original figures are given in English currency for imperial quarters=218 kg.=8 bushels (of 60 pounds.) The basis for the transactions of wheat in Buenos Aires is the hectoliter, 1 hl. being supposed to weigh 77 kg. (1 bushel=59.8 pounds). In fact, the Argentine wheat seems to be somewhat heavier than this, the average hectoliter of wheat in the province of Santa Fé having been found to weigh 78.11 kg. (1 bushel=60.7 pounds), in the province of Entre Rios, 79.98 kg. (1 bushel=62.2 pounds). Cf. *Ministère des Affaires Étrangères, Missions Commerciales; La République Argentine*, CHARLES WIENER (Paris, 1899), p. 53. In another place in his report, however (p. 344), Wiener gives for the weight of the hectoliter of wheat in Entre Rios as low an average as 68.04 kg.

<sup>2</sup>Including those not mentioned.

<sup>3</sup>Calculated for Argentina from *Ministerio de Obras Públicas; Dirección de Vías de Comunicación, Estadística de los Ferrocarriles en Explotación*, Año 1900, p. 255; cf. for the United States, *Statistical Abstract of the United States*, 1901, p. 390.

ITEMS.	ARGENTINA. <sup>1</sup>			UNITED STATES. <sup>2</sup>		
	1895.	1897.	1899.	1895-96.	1897-98.	1899-1900.
Passengers carried (in thousands) ..	14,753	16,411	18,013	511,773	501,067	576,865
Passengers carried 1 mile (in millions) .....	370	396	441	13,049	13,380	16,039
Passengers carried 1 mile per mile of line .....	42,180	43,703	43,852	71,705	72,462	83,295
Tons (2,000 lbs.) carried (in thousands) .....	10,638	19,900	13,029	765,891	879,006	1,101,680
Tons carried 1 mile (in millions) ..	950	1,141	1,421	95,328	114,078	141,599
Tons carried 1 mile per mile of line .....	108,215	114,913	141,369	523,832	617,810	735,366
Miles of railway per 100 square miles .....	0.79	0.82	0.92	6.15	6.28	6.51
Miles of railway per 10,000 inhabitants .....	21-22	21-22	21-22	25.8	25.4	25.4

Argentina, the number of passengers carried one mile per mile of line is from 70 to 90 per cent. higher in the United States than in the former country. The number of tons carried one mile per mile of line in the United States is even five times as large as in the South American republic. The density of the railways, measured by comparison of the length of mileage with the total area, is only one-seventh in Argentina of what it is in the United States. But while it is true that for Argentina, considered as a whole, the mileage of railways is exceedingly small in comparison with the area, this does not apply to the wheat districts. In fact, as will be seen from the following table, the four principal wheat producing provinces, with an area of 21.23

Provinces.	Mileage. <sup>3</sup>	Miles of Railway per 100 square miles.
Buenos Aires . . . . .	3286	2.79
Santa Fé . . . . .	2115	4.15
Córdoba . . . . .	1222	3.13
Entre Rios . . . . .	457	1.59
Total of four provinces.	7080	2.99
All others . . . . .	3119	0.36

<sup>1</sup> Calculated from *Estadística de los Ferrocarriles*, 1895, p. 24; 1897, pp. 22 f.; 1899, pp. 24-27, 217.

<sup>2</sup> *Interstate Commerce Commission, Thirteenth Annual Report for the year ending June 30, 1900*, pp. 13, 67.

<sup>3</sup> Calculated from *Estadística de los Ferrocarriles*, 1899, p. 8.

per cent. of the total area of the republic,<sup>1</sup> contained in 1899 69.41 per cent. of the total railway mileage.

In the central wheat region of the province of Santa Fé, which contains about one-half of the wheat acreage of the whole country, the number of miles of railway per 100 square miles of area was as high as eight.<sup>2</sup>

The number of miles of lines per 100 square miles of territory in the United States on June 30, 1900, was 6.51. With regard to the principal wheat producing states the following classes may be formed: Oregon (1.82), Oklahoma (2.13), California (3.69), South Dakota (3.71), Texas (3.77), North Dakota (3.89), Washington (4.36), Colorado (4.43); Nebraska (7.40), Minnesota (8.77), Virginia (9.42), Missouri (10.00), Kansas (10.67), Wisconsin (11.99); Maryland (13.96), Michigan (14.27), Iowa (16.56), Indiana (18.02), Illinois (19.65).<sup>3</sup>

The density of the railways in the principal wheat producing provinces of Argentina is then only as high as that of the western wheat states of the union, while in the central wheat district of the South American republic it is as intense as in some of the middle states.

The density of the railways, however, is only one factor determining the distance which the farmer has to haul his wheat by animal power. A second factor is the density of stations, where the grain is loaded on trains, or the distance of the elevators from each other, in case it is first stored. The total length of the railway mileage in Argentina at the end of the year 1899 was 10,199 miles; the total number of stations was 1028;<sup>4</sup> the average number of miles per station was then nearly 10 miles. The maximum distance between two stations in Argentina was 43½ miles.<sup>5</sup> Thirteen of the twenty-four roads in Argentina in 1899 carried each more than 30,000 net tons of grain (wheat,

<sup>1</sup> Cf. this JOURNAL, March, 1902, p. 268.

<sup>2</sup> Cf. KARL KAERGER, *Landwirtschaft und Kolonisation im Spanischen Amerika* (Leipzig, 1901), Vol. I, p. 184, and this JOURNAL, March, 1902, p. 274.

<sup>3</sup> Cf. *Interstate Commerce Commission, Thirteenth Annual Report*, p. 12.

<sup>4</sup> *Estadística de los Ferrocarriles*, 1899, pp. 104 f.

<sup>5</sup> Calculated from *ibid.*

corn and barley) and together 98.6 per cent. of the total grain transported; these thirteen railways, with a total length of 7,328 miles, had 807 stations, or one station for about each 9 miles. The average number of miles to a station on these thirteen roads varied between 7.5 miles and 12.8 miles. The maximum distance between two stations was 33 miles. The same result finally is arrived at if the investigation is restricted to those three lines which carried each more than 500,000 tons of grain in 1899, and together about 55 per cent. of the total grain freight, viz., the Sud de Buenos Aires, the Oeste de Buenos Aires, and the Central Argentino. With a total length of 3,708 miles, they had 394 stations, or again, one station to about each 9 miles (see table on p. 347, columns 1 to 4).

The author is not aware of any publication giving similarly comprehensive data for the railways of the United States. Moreover, no information is available as to the comparative regularity in the distribution of the railways and the stations in the wheat territory of both countries, and none as to the comparative directness of the roads from the farms to the stations or elevators. In order to get a conception of the average distance which the farmer has to haul his wheat by animal power, recourse must then be had to the various calculations and estimates which have been made for both countries.

In a report on "Transportation of Wheat in the Province of Santa Fé," written in September, 1895, Willis E. Baker, United States consul in Rosario, assumes that the average distance from the farm to the railway station is 3 leagues<sup>1</sup> (9.7 miles)<sup>2</sup>. In a similar way Alejandro Grant, manager of the Buenos Aires Central Market, in a letter of September, 1895, to Mr. Baker, on "Cost of Wheat Transportation," counts 3 leagues as the haul in the southern portion of the province of Buenos Aires,<sup>3</sup> while a land company of Buenos Aires recently (May, 1901), gave 2

<sup>1</sup> *Consular Reports, Commerce, Manufactures, etc.*, Vol. XLIX, No. 183, December, 1895, p. 475. The same average is given in a report of the Argentine Department of Agriculture (*Membrias de las Direcciones de Comercio é Industrias, Tierras y Colonias, Agricultura y Ganaderia é Inmigracion*, Buenos Aires, 1899, p. 135.

<sup>2</sup> 1 league = 3.22864 miles.

<sup>3</sup> *Consular Reports, loc. cit.*, p. 469.

to 3 leagues (6.5 to 9.7 miles) as the distance from its farms in the same district.<sup>1</sup> In his excellent studies on agriculture and colonization in Spanish America, Karl Kaerger, after a very careful examination of the subject, reaches the conclusion that, in the central wheat region of Santa Fé, the farmer has to haul his wheat on an average 7.3 miles, and in the main wheat region of Córdoba, 13.5 miles.<sup>2</sup> Eight or nine miles may then be taken as the average distance from the Argentine wheat farm to the nearest railway station.

In 1893 the government of the United States, in accordance with a law passed by Congress in March of that year, appointed Mr. Roy Stone as a special agent to gather information as to the traffic of the country roads in the United States.<sup>3</sup> After two years of investigation, returns from about 1200 counties were compiled, and "the result shows that the average length of haul in the eastern states is 5.9 miles; in the northern states 6.9 miles; in the middle states 8.8 miles; in the cotton states 12.6 miles; in the prairie states 8.8 miles; in the Pacific coast and mountain states 23.3 miles; and in the whole United States 12.1 miles."<sup>4</sup> Since this first investigation of the department of agriculture the question has been taken up in various states. Thus an investigation made in 1897 by the Bureau of Labor Statistics of Wisconsin, and covering 1,510 reports of farmers, showed the average haul to be about  $6\frac{3}{4}$  miles;<sup>5</sup> while an investigation made by the Geological Survey of Maryland, and giving

<sup>1</sup> *Review of the River Plate* (Buenos Aires, May 11, 1901) p. 29 (partly reprinted in this JOURNAL, March 1902, pp. 279 f.).

<sup>2</sup> KAERGER, *loc. cit.*, Vol. I, pp. 183-194.

<sup>3</sup> Address of Martin Dodge on "Better Roads and Larger Profits," in *Report of the Ohio Road Commission* (under Authority of House Joint Resolution No. 59, Seventieth General Assembly), p. 24.

<sup>4</sup> United States Department of Agriculture, office of Road Inquiry, *Circular No. 19* (cf. the criticism of this investigation by Ira O. Baker, "Fallacies in Good-Road Economies," *Engineering News*, Vol. XLIV, No. 20, November 15, 1900, pp. 322-25). The Ohio Road Commission in agreement with John M. Stahl had estimated the average haul over country highways to be eight miles (cf. *Report*, pp. 18, 25).

<sup>5</sup> *Eighth Biennial Report of the Bureau of Labor and Industrial Statistics, State of Wisconsin*, 1897-8, pp. 158, 194.

the average hauling distance for each county in Maryland, showed it to vary in the twenty-three counties from 3 miles (Caroline) to 13 miles (Prince George's and Montgomery), giving an average for the state of 6.7 miles.<sup>1</sup> Finally in his report to the Industrial Commission on the distribution of farm products, John Franklin Crowell says that "it has been shown after careful inquiry, that the average haul of the American farmer in getting his produce to market, or to the nearest shipping station, is 12 miles."<sup>2</sup> It thus seems that the average distance from the wheat farm in the United States to the nearest shipping point is probably not shorter than in Argentina.

As to the cost of hauling the wheat, Baker, in a consular report on "Transportation of Wheat in the Argentine Republic," states, without giving the distance for the haul, that "the cost of moving grain from the farms to the railway stations is a very inconsiderable item—not 75 cents (gold) per ton"<sup>3</sup> (about 65½ American cents for a net ton of 2,000 pounds, that is, 2 cents per bushel of wheat). He later on gives \$0.70 (61 American cents per ton) as the average cost from the farm to the station.<sup>4</sup> With regard to the southern portion of the province

<sup>1</sup> ARTHUR NEWHALL JOHNSON, "The Present Condition of Maryland Highways," *Maryland Geological Survey*, Vol. III (Baltimore, 1899), p. 208.

<sup>2</sup> *Report to the Industrial Commission*, Vol. VI, p. 446. In discussing the methods of handling grain in California, T. C. Friedlaender makes the surprising statement that "the average haul will probably not exceed 3 miles" (*ibid.*, p. 96).

<sup>3</sup> *Consular Reports, loc. cit.*, p. 461.

<sup>4</sup> *Ibid.*, p. 469. In his report on "Transportation of Wheat in the Province of Santa Fé," Mr. Baker says: "When the roads are in ordinary condition, it is considered that the charge for cartage will be about \$1, paper currency—say 35 cents gold—per ton per league. Assume that the average distance is 3 leagues from the station, and we have \$1.05 gold for cartage." This would give 92 cents for the total haul per net ton. But as the average price of gold in 1894 was 357, in 1895 344, Baker evidently meant to put 3.50 paper pesos equal to 1 gold peso. If these values are substituted, the total haul per net ton would be only 75 cents (2¼ cents per bushel), the haul per ton per mile 7¾ cents. In agreement with Baker, who gives 3.15 paper pesos for the average haul of 3 leagues in Santa Fé, the Argentine Department of Agriculture in 1899 quotes \$3 (*cf. loc. cit.*, p. 135). The value of the paper, however, had meanwhile increased considerably, and the estimate of the Department of Agriculture in 1899 means in fact in American equivalents \$1.17 per ton for the whole distance (3½ cents per bushel) and 12 cents per ton per mile.



of Buenos Aires, Grant<sup>2</sup> says: "The cartage from the chacra to the railway station for a distance of about 3 leagues costs just now \$2.80 paper money per ton. In summer, when the roads are in good condition, this charge is much less." As he states the rate of exchange to be 1 : 3.335 at the time when he wrote his letter (September, 1895), his statement shows the cost of hauling a net ton for the entire distance to have been 73½ cents (2½ cents per bushel) and 7.6 cents per ton per mile.<sup>3</sup> In discussing the average cost of hauling the wheat from the farm to the nearest shipping station in the provinces of Santa Fé and Buenos Aires, Kaerger finds an average expense of only from 45 to 60 cents per net ton (1½ to 1⅔ cents per bushel) and shows the cost per ton per mile to be only from about 6 to 8 cents in the former province.<sup>3</sup> Even in taking full account of the fact that with the increase of the value of the paper currency at the end of the nineties, the prices measured in gold have considerably increased, it seems safe to assume that the average cost of hauling a ton of wheat a mile in Argentina would not be far from 10 cents and that the average expense of hauling a ton of wheat from the farm to the nearest shipping station will probably be less than one dollar (3 cents per bushel).

In his investigation relating to the traffic of the country roads in the United States, Roy Stone came to the following results as to the average cost per ton of 2,000 pounds per mile :

<sup>1</sup> *Consular Reports, loc. cit.*, p. 475.

<sup>2</sup> In a letter of August 27, 1895, on "Wheat Trade and Transportation in the Argentine Republic," to Mr. Baker, Henry D. Woolfe (*ibid.*, p. 473) states: "From the best sources I learn that the expenses may be set at from 40 to 60 cents (paper) per 100 kilos." In an appended "*pro forma* invoice of a shipment of wheat, which exhibits the cost when the gold rate was at 270 premium," Woolfe gives (p. 475) as the cartage from a farm in the province of Santa Fé to railroad station 40 cents (paper) per 100 kg., or 95 cents per net ton (2⅔ cents per bushel). In a similar way the above mentioned land company of Buenos Aires, in its statement of May, 1901, estimated the cartage to rail from its farms in the southern portion of the province of Buenos Aires to be 40 cents (paper) per 100 kg. But the premium on gold had meanwhile decreased so considerably that this cost would be equivalent to \$1.54 per net ton for the entire haul (4⅔ cents per bushel), and as the company assumes the distance to be from 2 to 3 leagues, 19 cents per ton per mile.

<sup>3</sup> Cf. KAERGER, *loc. cit.*, Vol. I, pp. 210, 545.

in the eastern states 32 cents; northern states, 27 cents; middle southern states, 31 cents; cotton states, 25 cents; prairie states, 22 cents; Pacific coast and mountain states, 22 cents; and the whole United States, 25 cents.<sup>1</sup> Martin Dodge, in his capacity as president of the Ohio Road Commission, appointed in 1893, found the cost of moving freight per ton per mile to vary in the various counties between 10 and 50 cents, the average rate for the state being 25 cents.<sup>2</sup> According to the reports from 510 farmers in the state of Wisconsin, the cost of hauling a ton of wheat one mile would have averaged in this state only about 15 cents;<sup>3</sup> while the Geological Survey of Maryland found the average haul to be in that state 26 cents per mile.<sup>4</sup> Crowell, in his report to the Industrial Commission, again agrees with the results of Roy Stone when he says: "The average cost per ton for hauling over the common country roads is 25 cents per ton per mile."<sup>5</sup>

As to the average total cost per ton for the whole length of haul, Roy Stone gives for the eastern states, \$1.89; northern states, \$1.86; middle southern states, \$2.72; cotton states, \$3.05; prairie states, \$1.94; Pacific coast and mountain states, \$5.12; and the whole United States, \$3.02<sup>6</sup> (9 cents per bushel). According to the reports from the same 510 farmers of the state of Wisconsin, the cost of hauling wheat averaged 2.8 cents per bushel, which would be equal to only 93½ cents per ton,<sup>7</sup> while

<sup>1</sup> Office of Road Inquiry, *Circular No. 19*.

<sup>2</sup> *Report of the Ohio Road Commission, loc. cit.* (cf. also testimony of Martin Dodge before the Industrial Commission, Vol. X, pp. 690-716, and *idem.*, "The Good-Roads Movement," in *American Monthly Review of Reviews*, January, 1902, pp. 66-72).

<sup>3</sup> Cf. *Eighth Biennial Report of the Bureau of Labor and Industrial Statistics, State of Wisconsin*, 1897-8, p. 169.

<sup>4</sup> *Maryland Geological Survey*, Vol. III, p. 211.

<sup>5</sup> *Industrial Commission*, Vol. VI, p. 446.

<sup>6</sup> Office of Road Inquiry, *Circular No. 19*.

<sup>7</sup> *Wisconsin Labor Bureau, loc. cit.*, p. 169. In a similar way Michael P. Moran, president of the National Grain Growers' Co-operative Association, gave to the Industrial Commission (Vol. X, p. 707) 3 cents as the average cost for 11 years of hauling a bushel of wheat to market from 3 to 7 miles in Bigstone county, Minn.; this makes exactly one dollar per ton.

the Geological Survey of Maryland estimates the cost of the haul in its state to be \$1.74<sup>1</sup> (5¼ cents per bushel). As a result of a special investigation made for West Virginia, Crowell shows that the cost of moving farm products to shipping points varies in fifty-four counties between \$1 (Brooke, Jefferson, Mason, Ohio, and Wood) and \$10 (Pocahontas). He comes to the conclusion that the average cost of hauling a ton to the railroad station in West Virginia is \$3.40 (10½ cents per bushel), while he considers \$3 (9 cents per bushel) as the average cost to the American farmer in getting his produce to market.\*

While the compilation of these various estimates for both countries perhaps serves its purpose of throwing some light upon the question of the cost of transportation from the farms to the nearest shipping point, the figures by no means allow of final conclusions. The reasons for this are obvious. First, the number of actual observations upon which all the figures are based is not large enough to prove something for the country as a whole; second, they do not all refer to wheat, but some of them to loads of any kind of freight; third, the cost of hauling seems to include in some cases that for loading and unloading, and in others not; and, fourth, the costs themselves are estimated according to different methods. Yet the differences found between the estimates for both countries are so large that there is hardly any doubt that the cost of hauling the wheat from the farm to the nearest railway station is considerably higher in the United States than in Argentina.

After having reached the local railway station in Argentina, the wheat to be exported is generally carried directly by rail to the shipping port. While this is true in the United States for the wheat of the Pacific coast region—which has also, in common with the Argentine wheat, a much longer ocean transportation to Europe than the North American going over Atlantic or Gulf ports—the export wheat grown east of the Rocky

<sup>1</sup> Cf. HARRY FIELDING REID, "The advantages of good roads in Maryland," *Geological Survey*, Vol. III, p. 409.

\* *Industrial Commission*, Vol. VI, p. 447.

NAME OF ROAD.	DECEMBER 31, 1899.				RATES ON WHEAT IN 1899.4		
	Mileage. <sup>1</sup>	Number of Stations. <sup>2</sup>	Average number of Miles to one Station.	Maximum Distance between Stations in Miles. <sup>3</sup>	Minimum to which Rate Applies. <sup>5</sup>	Per 1000 Kilogr <sup>m</sup> Paper Pesos. <sup>6</sup>	
						Terminal Charge.	Rate per Kilometer.
Andino (State railway)....	220.5	18	12.3	33	6000 kg	0.64	0.019
Sud de Buenos Aires .....	2294.5	218	10.5	32	5000 kg	2.12	0.01
Oeste de Buenos Aires.....	567.8	72	7.9	25	5000 kg	2.50	0.013
Buenos Aires al Rosario...	935.3	114	8.2	21	Car load	1.70	0.0255
Central Argentino.....	845.8	104	8.1	20	Car load	1.10	0.017
Buenos Aires al Pacifico...	497.1	43	9.9	21	5000 kg	1.50	0.033
Villa María á Rufino.....	141.0	11	12.8	27	5000 kg	1.65	0.016
Oeste Santafeano.....	130.8	17	7.7	14	6000 kg	0.50	0.021
Grand Sud de S. Fé y Córdoba .....	240.3	22	10.9	16	Car load	0.50	0.009
Entre Ríos.....	399.5	44	9.1	17	.....	2.00	0.018
Provincia di Santa Fé.....	814.6	87	9.4	19	Car load	2.40	0.05
Central Córdoba Sec. Este..	130.8	13	10.1	19	6000 kg	2.00	0.03
Córdoba y Rosario.....	179.5	24	7.5	14	Car load	1.50	0.02

<sup>1</sup> Calculated from *Estadística de los Ferrocarriles*, 1899, pp. 104 f.

<sup>2</sup> Cf. *ibid.*, pp. 108 f.

<sup>3</sup> Calculated from *ibid.*, pp. 108 f.

<sup>4</sup> Cf. *ibid.*, pp., 274 f.

<sup>5</sup> No minimum given for the Entre Ríos road.

<sup>6</sup> The rates are given in paper pesos at a value of 227 paper pesos equal to 100 gold pesos. The average price of gold in 1899 has indeed been 224.62 (cf. *Review of the River Plate*, Saturday, January 4, 1902, p. 191); the maximum premium on gold having been 143.4 (October 26), the minimum 104.0 (January 11) (cf. *Anuario de la Estadística*, 1899, Tomo I, pp. 393-409).

Mountains is in part brought by rail at a local rate to a primary market, and in part sent at a through rate to the ocean.

In Argentina wheat is hardly ever carried by rail over more than perhaps two hundred and fifty miles. The average distance of the local railway station from the shipping port is not higher than perhaps one hundred, at the utmost one hundred fifty miles.<sup>7</sup> The above table gives for each of the thirteen roads which

<sup>7</sup> Cf. KAERGER, *loc. cit.*, Vol. I, pp. 197 ff., 418, 545 f. In his report on "Transportation of Wheat in the Argentine Republic" Mr. Baker says (*loc. cit.*, p. 460 f.): ". . . it must be borne in mind that the Argentine wheat regions are at the present time in the provinces of Buenos Aires, Santa Fé, and Entre Ríos—all three bordering on water courses which are navigable for ordinary-sized ocean craft—and their distances from the principal ports of export, in no instance, probably exceed 150 miles." In his report on "Transportation of Wheat in the Province of Santa Fé" (*loc. cit.*,

in 1899 carried more than thirty thousand net tons of grain, the rates exactly as they were published by the Argentine department of public works.

In order to get a fair idea of the charges made by the Argentine railways upon the wheat, it is necessary to compare their short haul rates with local wheat rates in the United States. The following table shows for a number of distances the rates charged by the thirteen Argentine railways, together with a series of thirteen rates at present in force in the United States.<sup>1</sup>

For distances under 100 miles the Argentine rates are decidedly lower than those of the railways selected for the United States.<sup>2</sup> For a distance of 10 miles, seven of the thirteen Argentine railways charge less than 4 cents per 100 pounds of wheat, which is the minimum found for the United States, while the maximum of 5.12 cents found for Argentina is exceeded in three cases in the United States. Eight Argentine railways charge for 25 miles less than the United States minimum of 5.30 cents, and eight in the latter country exceed the maximum of 5.87 cents of Argentina. Five Argentine railways charge for 50 miles less than 6.30 cents, the minimum for the United States, and the

p. 475), he further states that "an area distant about one hundred kilometers (60 miles) from Rosario . . . would represent the bulk of the wheat production of the province of Santa Fé." William Goodwin, in his pamphlet on *Wheat Growing in Argentina* (Liverpool, 1895), says (p. 46) that "the average distance from station to seaboard is about one hundred miles." The land company of Buenos Aires, before mentioned, states as a special drawback of its lands and as the reason for the small rent which it requires for them that they are 150 miles distant from a seaport.

<sup>1</sup> An illustration may show the calculations which have been made in order to make the Argentine rates comparable with those copied from the North American schedules. The Argentine table gives for the Andino line: Terminal charge, per 1,000 kg, 64 centavos; rate per kilometer, per 1,000 kg, 1.9 centavos. This makes for 100 pounds for 10 miles  $\frac{64 \times 96.48}{22.0462 \times 227}$  cents +  $\frac{10 \times 19 \times 96.48}{0.62137 \times 22.0462 \times 227}$  cents = 1.82 cents (1 paper peso =  $\frac{96.48}{227}$  cents; 1,000 kg = 2,204.62 pounds, 1 km = 0.62137 mile). No information is given as to what distances the two rates of the Sud de Buenos Aires road apply. As the two rates of the same road for lumber apply to less than 350 and more than 350 km each, this limit of 217.5 miles has been assumed to be the one also prevailing for wheat.

<sup>2</sup> It may be observed that this is especially the case with the Andino road, the only line of those taken into consideration which is owned by the state.





maximum of 8.72 cents of Argentina is exceeded in three cases in the United States. While six Argentine lines charge for 75 miles less than 8 cents, and only one more than 10 cents, only one case of less than 8 cents, and six of 10 cents and more will be found in the United States.

For distances from 100 to 150 miles the rates are more similar in both countries; but while there are in Argentina only two lines charging for 100 miles more than 11 cents, only three charging more than  $\frac{1}{10}$  cent per mile for 125 miles, and none charging as much for 150 miles, there are in the United States six cases with more than 11 cents for 100 miles, the same with more than  $\frac{1}{10}$  cent per mile for 125 miles, and four with more than  $\frac{1}{10}$  cent per mile for 150 miles.

At 200 miles the rates in both countries are much the same, while beyond this limit the rate per mile decreases faster in the United States than in Argentina.<sup>1</sup>

If, then, the average distance from the local station in Argentina to the shipping port is assumed to be about from 100 to 150 miles, the average freight per 100 pounds of wheat will

<sup>1</sup>It might be well to compare these general wheat schedules in force in the United States with some actual wheat rates applied from certain specific points to certain primary markets. In his report on "Distribution of Farm Products," Crowell gives the rates on wheat per 100 pounds in force on February 1, 1897, from a number of points to either St. Paul, Minneapolis, or Duluth, together with their distance to the primary market. (*Ind. Comm.*, Vol. VI, pp. 89-93.) The following table is compiled from the data given by Crowell, the last column containing the results of the opposite insert table.

Number of Local Stations Considered.	Distance to Primary Market in Miles.	Rates in Cents per 100 Pounds.	Rates of Thirteen Schedules in Table.
11	25	4-8	5.3-8
11	50	7-12	6.3-10.5
14	75	9-12	7.3-13
11	100	9-15	8.1-15.5
8	150	11.5-14.5	9.5-20.5
9	200	13.5-17	10.8-24.5
6	250	14.5-16	12.15-26

A comparison of the rates given by Crowell with those of the general schedules does not show any marked difference.



probably be about 11 or 12 cents, or 7 cents per bushel.<sup>1</sup> The railway freight rate of the Pacific coast wheat to the ocean seems to be somewhat higher. It has been estimated that the average rate from points in Oregon and Washington to the Puget Sound ports is about 10  $\frac{1}{2}$  cents per bushel.<sup>2</sup> With regard to the freight charges from the local station to the primary market in the wheat regions of the United States east of the Rocky Mountains, it would be difficult to estimate the average charge. This rate indeed varies between a nominal amount and — exceptional cases excluded — about 15 cents per bushel, the latter being the rate from some western Kansas and Nebraska points to Chicago.<sup>3</sup> It may, however, be supposed that the average will not be very far from that of 7 cents found for Argentina.<sup>4</sup>

After having reached the primary market, the wheat to be exported is then carried either by water or by rail to the ocean. While about three-fourths of the total wheat shipped from Chicago,<sup>5</sup> and a still larger proportion of that shipped from Duluth, leaves the primary market by water, there is only a small part which reaches the ocean by water, most of it being loaded on rail at Buffalo or some other point. The amount of wheat shipped from St. Louis to New Orleans by way of the Mississippi

<sup>1</sup> KAERGER (*loc. cit.*, Vol. I, pp. 199 f., 212, 218 f. 546) gives as the average rate of transportation per 100 pounds of wheat from the local station in the provinces of Santa Fé and Buenos Ayres to the ocean 10  $\frac{3}{4}$  cents, from Córdoba 14  $\frac{1}{2}$  cents. In several estimates quoted by Baker (*loc. cit.*, pp. 466, 470, 475 f.) the average rate per 100 pounds varies between 6  $\frac{1}{2}$  and 17  $\frac{1}{2}$  cents.

<sup>2</sup> *Cf. Industrial Commission*, Vol. VI, p. 102.

<sup>3</sup> *Cf. ibid.*, pp. 130, 134.

<sup>4</sup> In calculating the expenses of marketing wheat at St. Louis in November, 1899, the following rates have been found per bushel of wheat: From Tipton, Mo. (163 miles), 6 cents; from Bloomfield, Iowa (258 miles), and Woodburn, Iowa (368 miles), 7.8 cents; from Indianola, Iowa (385 miles), 9.6 cents; from Crete, Neb. (486 miles), 12 cents; from Hutchison, Kan. (590 miles), 12.6 cents. Calculations made for the same time in Kansas City have shown the following results: from Falls City, Neb. (101 miles), 4.8 cents; from Wellington, Kan. (273 miles), 7.2 cents; from McPherson, Kan. (217 miles), 7.8 cents; from Bennington, Kan. (187 miles), 8.4 cents; from Perry, Okla. (338 miles), 9.9 cents; from Blue Hill, Neb. (301 miles), 10.3 cents; from Oklahoma City, Okla. (400 miles), 13.2 cents. (*Cf. ibid.*, pp. 80, 86.)

<sup>5</sup> *Cf. ibid.*, p. 142.

is also not very large, most of the export wheat being shipped by rail to New York.

The different average rates in cents per bushel of wheat from Chicago and St. Louis to the ocean for the last twelve years will be seen from the following table :<sup>1</sup>

Years.	FROM CHICAGO TO NEW YORK.			From St. Louis to New York by Rail. <sup>2</sup>	From St. Louis to New Orleans by River.
	By all Rail.	By Lake and Rail.	By Lake and Canal.		
1890	14.31	8.5	5.85	16.58	6.58
1891	15	8.53	5.96	17.40	6.88
1892	14.23	7.55	5.61	15.97	6.50
1893	14.70	8.44	6.33	17.10	6.55
1894	12.88	7	4.44	14.84	5.89
1895	12.17	6.95	4.11	14.14	5.95
1896	12	7.32	5.38	13.60	5
1897	12.32	7.37	4.35	14.18	4.88
1898	11.55	4.96	4.42	13.35	4.50
1899	11.13	6.63	5.65	13.17	4.50
1900	9.08 <sup>3</sup>	5.05	4.42	11.63	4.25 <sup>4</sup>
1901	9.02 <sup>3</sup>	5.57	5.14	11.60	4.25 <sup>4</sup>

According to this table the rates have varied in the last twelve years from St. Louis to New York by rail between 11.6 and 17.4 cents, by water to New Orleans between 4.25 and 6.9 cents. According to the New York Produce Exchange, from whose reports the rates from Chicago have been taken, the average rate between the latter city and New York by all rail has varied between 9 and 15 cents, by lake and rail between 5 and 8.5 cents, by lake and canal between 4.1 and 6.3 cents.<sup>5</sup> The lake rate from Duluth to Buffalo being about one cent higher than that from Chicago, the freight by lake and rail and

<sup>1</sup>Cf. *Statistical Abstract of United States*, 1901, pp. 402 f.

<sup>2</sup>The rates are given per 100 pounds; here they have been expressed in bushels of 60 pounds.

<sup>3</sup>Local rate for export.

<sup>4</sup>F. o. b. New Orleans.

<sup>5</sup>The rates given in the reports of the Board of Trade of Chicago are much the same so far as the transportation by all rail, and lake and rail are concerned, but are, up to 1898, considerably higher for the lake and canal freight (cf. *Forty-third Annual Report of the Trade and Commerce of Chicago*, p. 108). The difference is partly due to the fact that the Buffalo charges are included in the rates of the Chicago Board of Trade.

by lake and canal will be about one cent higher from Duluth to New York than from Chicago.<sup>1</sup> A comparison of the lake and rail rates from Chicago to Boston with those from Chicago to New York, shows the former to be 3 cents higher than the latter.<sup>2</sup> The difference between the all-rail freight rates on wheat from Chicago to the several Atlantic ports will be seen from the following table.<sup>3</sup>

During these five years the published rate was thus from Chicago to Boston 1.2 cents higher, to Philadelphia 1.2 cents lower, and to Baltimore 1.8 cents lower than to New York. As the 12-cent rate from Chicago to New York was in force during the larger part of these five years, the prevailing rate to Boston was 13.2 cents, to Philadelphia 10.8 cents, to Baltimore 10.2 cents. Since the beginning of 1899 separate rates are published for the domestic and the export trade. The rates on export

<sup>1</sup> The average daily rates per bushel of wheat to Buffalo were as follows :

Season.	From Chicago.	From Duluth.	Season.	From Chicago.	From Duluth.
1890	1.96	2 - 3	1896	1.70	2.12
1891	2.38	1½-9½	1897	1.56	1.75
1892	2.19	2½-4	1898	1.53	1.8
1893	1.66	1½-3½	1899	2.71	3.6
1894	1.27	1½-3	1900	1.79	2.0
1895	1.97	3.5	1901	1.42	2.3

*Cf. Monthly Summary of Commerce and Finance, December, 1901, pp. 2391 f.*

<sup>2</sup> The weekly freight rates per bushel of wheat in cents from Chicago to Buffalo by lake, and thence by rail to New York and to Boston, varied as follows:

Season.	To New York.	To Boston.
1894	7	9½-10
1895	6½-8½	8½-11
1896	6½-7½	9½-11
1897	6½-8	9½-10½
1898	4½-6	9½

*Cf. Thirty-seventh Annual Report of the Board of Trade of Chicago, p. 113; idem, Thirty-eighth Report, p. 113; idem, Thirty-ninth Report, p. 113; idem, Fortieth Report, p. 115; idem, Forty-first Report, p. 115.*

<sup>3</sup> The rates are given per 100 pounds *ibid.*, *Thirty-seventh Report*, p. 116; *Thirty-eighth Report*, p. 116; *Thirty-ninth Report*, p. 116; *Fortieth Report*, p. 118, and *Forty-first Report*, p. 119. Here they are expressed in bushels of 60 pounds.

ALL-RAIL FREIGHT RATES ON WHEAT FROM CHICAGO IN CENTS  
PER BUSHEL IN THE YEARS 1894 TO 1898.

Time During which Rate Was in Force.	To New York.	To Boston.	To Phila- delphia.	To Baltimore.
January 1, 1894, to February 27, 1894...	15	16.2	13.8	13.2
February 27, 1894, to November 12, 1894	12	13.2	10.8	10.2
November 12, 1894, to December 31, 1894	15	16.2	13.8	13.2
January 1, 1894, to June 27, 1895.....	12	13.2	10.8	10.2
June 27, 1895 to July 8, 1895.....	9	10.2	7.8	7.2
July 8, 1895, to October 15, 1897.....	12	13.2	10.8	10.2
October 15, 1897, to December 31, 1897.	13.5	14.7	12.3	11.7
January 1, 1898, to June 27, 1898.....	12	13.2	10.8	10.2
June 27, 1898, to November 10, 1898...	10.8	12.0	9.6	9
November 10, 1898, to January 2, 1899..	12	13.2	10.8	10.2

wheat in force in the years 1899, 1900, and 1901, from Chicago to the same ports, will be seen from the following table:†

Time During which Rate was in Force.	To New York.	To Boston.	To Philadelphia	To Baltimore.
January 2, 1899, to February 1, 1899....	12	12	10.8	10.2
February 1, 1899, to March 1, 1899.....	9.6	9.6	9	8.7
March 1, 1899, to April 18, 1899.....	11.1	11.1	10.5	10.2
April 18, 1899, to June 26, 1899 .....	9.3	9.3	8.7	8.4
June 26, 1899, to August 1, 1899.....	7.2	7.2	6.6	6.3
August 1, 1899, to September 18, 1899..	6.6	6.6	6	5.7
September 18, 1899, to November 1, 1899	8.4	8.4	7.8	7.5
November 1, 1899, to March 12, 1900...	12	12	11.4	11.1
March 13, 1900, to April 1, 1900.....	7.8	7.8	7.2	6.9
April 2, 1900, to October 31, 1900.....	8.1	8.1	7.5	7.2
November 1, 1900, to December 31, 1900	9.6	9.6	9	8.7
Year 1901.....	8.1	8.1	7.5	7.2

During these three years, the export rates to Boston were then always exactly the same as to New York, those to Philadelphia and Baltimore (with the exception of the first month where they were still as in the preceding years 1.2 and 1.8 cents lower than to New York) were 0.6 cents and 0.9 cents lower

† Calculated for 1899 and 1900 from *idem, Forty-second Report*, p. 118; *Forty-third Report*, p. 109; for 1901 from *Final Report of the Industrial Commission*, p. 172. According to the same authority, the export wheat rates from East St. Louis to New York, and to Boston, if one bushel of wheat is counted equal to 60 pounds, would have been 9.3 cents, to Philadelphia 8.7 cents, to Baltimore 8.4 cents. It may, however, be noted that these figures derived from a 100-pound rate are lower than those given in the table on page 351.

than to New York. The published rates from Chicago to New York varied between 6.6 and 12 cents.

If conditions in the years 1895 to 1901 only are taken into consideration, the average rates per bushel of wheat would have been about the following: Chicago–New York by lake and canal, 5 cents;<sup>1</sup> St. Louis–New Orleans by river, 5 cents; Chicago–New York by lake and rail, 6½ cents;<sup>2</sup> Chicago–Boston by lake and rail (1894 to 1898), 10 cents; and by all rail Chicago–New York, 11 cents; Chicago–Boston, 12 cents; Chicago–Philadelphia, 10 cents; Chicago–Baltimore, 9½ cents; St. Louis–New York, 13 cents. This would give for the wheat leaving the primary market by water a rate of from 5 to 10 cents, and for that making the entire trip by rail, from 10 to 13 cents. If 7 cents is added to each of these items as the rate from the local station to the primary market, the totals would vary between 12 and 17 cents for part-water transportation and from 17 to 20 for all-rail transportation.

It must, however, be taken into consideration that a part of the export wheat is carried from the local station to the seaboard on a through rate. This is especially true for a large part of the wheat grown east of the Mississippi in the "Central Freight Association Territory," from the various districts of which the through rates to New York are expressed as a percentage of the Chicago–New York rate. Thus the rates from various points in Illinois vary between 100 and 125 per cent of the Chicago–New York rate, those from Eastern Michigan between 84 and 120, those from Indiana between 86 and 110 per cent.<sup>3</sup> The export wheat from the territory around Chicago, from Eastern Michigan and from Indiana would then be carried to the seaboard on an average at about the same rate as from Chicago itself, while the wheat exported from some western points of Illinois near

<sup>1</sup> All rates from Duluth by lake (1895–1901) about ½ cent higher than from Chicago.

<sup>2</sup> 1894 to 1898, 7 cents.

<sup>3</sup> Cf. Group Map showing percentage basis of east-bound class-rates of individual lines. In effect January 1, 1899.

the Mississippi river would be charged the Chicago-New York rate plus an additional 25 per cent. of that rate. A part of the wheat exported from west of the Mississippi would thus be carried at a local rate to the river and thence enjoy the through rate to New York.<sup>1</sup>

Moreover there is little doubt that the railway rates actually paid did not always correspond to the published rates upon which the above calculations have, for the most part, been based. While this fact perhaps does not play a conspicuous part, so far as the transportation from the local station to the primary market is concerned, it is an important factor in the study of the through-rates to the seaboard.<sup>2</sup> The published wheat export rate by all rail from Chicago to New York for instance was in 1901, 13½ cents per 100 pounds. As to this rate, a recent inquiry made by the Interstate Commerce Commission showed that there was no claim that any export wheat moved upon the "published rate. Instead, the carriers operating between Chicago and the seaboard had agreed among themselves upon a rate 2½ cents lower than the published export rate. . . . While this rate was not published, the carriers stated that its existence was generally known to the shipping public, and that all shippers were able to avail themselves of it."<sup>3</sup> On the other hand it must be born in mind that this statement of the Interstate Commerce Commission only refers to the traffic of Chicago and

<sup>1</sup> So far as the transportation of corn on local and on through rates to the East is concerned, the Industrial Commission states in general (*Final Report*, p. 178): "The difference between the through and the local rate is in normal times from 2 to 3 cents a bushel on corn in favor of a through shipment." The same authority states at a later place (p. 349), in regard to local and through rates from Missouri river points, that the rate "to Chicago on grain for export is somewhat more than 3 cents lower per 100 pounds than on grain destined to Chicago for consumption there."

<sup>2</sup> It may however be noted that the Interstate Commerce Commission in its last report (January 17, 1902) points to the importance of the rebates accorded on the shipments even to primary markets. It states (*Fifteenth Annual Report*, p. 15): "At the present time grain and grain products move from points of origin to the seaboard generally upon secret rates. This is entirely true of that portion which is exported, and, in the main true of domestic traffic. No serious attempt was made, or could be made to distinguish between export and domestic in applying the cut rate to Chicago."

<sup>3</sup> *Ibid.* pp. 12 f.

not to other primary markets and further "that the 'agreed rate' . . . was accorded only to Chicago. Intermediate points which usually take a percentage of the Chicago basis did not enjoy the benefit of this rate."<sup>1</sup>

OCEAN FREIGHT RATES ON WHEAT FROM AMERICA TO EUROPE IN  
CENTS PER BUSHEL.

Years.	New York to Liverpool. <sup>2</sup>	Boston to Liverpool. <sup>2</sup>	Philadelphia to Liver- pool. <sup>2</sup>	Baltimore to Liver- pool. <sup>2</sup>	New Orleans to Liver- pool. <sup>3</sup>	San Francisco to Cork f.o. U. K., Havre, or Antwerp. <sup>4</sup>	BUENOS AIRES TO	
							England.	Bremen and Hamburg.
1888 .....	5.3	5.6	...	6.3	8.7	17.1	7.4	10.3
1889 .....	8.0	6.5	...	9.1	11.4	21.4	9.1	9.5
1890 .....	4.9	4.9	...	5.7	7.8	24.3	10.9	9.5
1891 .....	6.3	5.4	...	7.0	8.9	27.3	11.1	7.8
1892 .....	5.3	4.6	...	6.8	7.5	20.3	9.8	11.0
1893 .....	4.8	3.8	5.8	5.7	8.2	14.8	10.3	10.5
1894 .....	3.9	3.0	4.8	4.8	5.8	18.0	9.5	9.8
1895 .....	5.2	3.3	4.7	4.9	6.2	17.6	9.1	9.2
1896 .....	6.0	4.3	6.0	6.3	8.5	17.0	8.2	8.8
1897 .....	6.2	...	...	6.4	8.0	15.5	4.5	4.5
1898 .....	7.0	...	...	7.3	9.7	18.3	8.9	10.1
1899 .....	4.9	...	...	5.8	7.8	16.9	...	14.3
1900 .....	6.8	...	...	7.8	10.4	24.4	...	11.1
1901 .....	2.5	...	...	...	5.2	25.1	...	...

Taking account of these various circumstances, it might then be said that the actual rate paid per bushel of wheat from the local station to the seaboard by part water transportation will

<sup>1</sup> *Ibid.* p. 12.

<sup>2</sup> Rates for 1888-96, calculated from *Summary of Commerce and Finance* for January, 1900, p. 1,987; rates for 1897-1901 for New York, from *Statistical Abstract of the United States*, 1901, p. 402; for 1897-1900 for Baltimore, from *Forty-third Annual Report of the Baltimore Chamber of Commerce*, pp. 145-50; *Forty-fourth Report*, pp. 136-41; *Forty-fifth Report*, pp. 138-43; *Forty-sixth Report*, pp. 136-41.

<sup>3</sup> Calculated from *Statistical Abstract*, 1901, p. 403.

<sup>4</sup> Calculated from *Thirty-fourth Annual Report of the San Francisco Produce Exchange*, p. 41, for the years ending June 30, 1888, etc. For the monthly average cargo rates in the calendar year 1901 from California, Puget Sound, and Columbia River points, see *Summary of Commerce and Finance* for December, 1901, p. 2,409.

<sup>5</sup> For the years 1888-90, calculated from *Anuario*, 1897, Vol. I, p. 343; for the years 1891-1900, from *ibid.*, 1900, Vol. I, pp. 408 f.

probably not have been very different from the above found rate of from 12 to 17 cents, while the average rate paid for all rail transportation will not have been, as assumed before, between 17 and 20 cents, but several cents less and perhaps not much higher than that for part-water transportation.

While, then, in recent years the average freight rate from the local station to the shipping port was about 7 cents per bushel in Argentina, it was in the Pacific coast region about  $10\frac{1}{2}$ , and east of the Rocky Mountains to the Atlantic or Gulf ports about 14 or 15 cents.

The different ocean rates from Buenos Aires and from Atlantic and Pacific ports of the United States to the European markets will be seen from the opposite table.

According to this table the ocean rates per bushel of wheat varied then since 1888 from Buenos Aires to England between 4.5 and 11.1 cents; to German ports, between 4.5 and 14.3 cents; to Liverpool from New York, between 2.5 and 8 cents; from Boston, between 3 and 6.5 cents; from Philadelphia, between 4.7 and 6 cents; from Baltimore, between 4.8 and 9.1 cents; from New Orleans, between 5.2 and 11.4 cents; to Cork f. o. from San Francisco between 14.8 and 25.1 cents. The average rate from Buenos Aires was about  $9\frac{1}{2}$  cents; from the Atlantic ports of the United States, about  $5\frac{1}{2}$  cents; from New Orleans, about 8 cents; from San Francisco, about 20 cents. The rates from Buenos Aires to Europe were then about 4 cents per bushel higher than those from the Atlantic seaports of the United States; about  $1\frac{1}{2}$  cents higher than those from New Orleans, and about  $10\frac{1}{2}$  cents lower than those from San Francisco.

It has been estimated before that if 7 cents is considered as the average rate from the local station in the United States to the primary market, this would be equal to the rate from the local station in Argentina to the ocean. It is therefore interesting to compare the rates from the primary market in the United States to England with those from Buenos Aires to the United Kingdom, By adding the above found rates to the ocean rates



of the last table, the average rates per bushel of wheat would be about the following :

Chicago-New York-Liverpool, all water (1895-1901),  $10\frac{1}{2}$  cents;<sup>1</sup> St. Louis-New Orleans-Liverpool, all water (1895-1901),  $12\frac{1}{2}$  cents; Chicago-New York-Liverpool, by lake, rail, and ocean (1895-1901), 12 cents;<sup>2</sup> Chicago-Boston-Liverpool, by lake, rail, and ocean (1894-96),  $13\frac{1}{2}$  cents; and by rail and ocean, Chicago-New York-Liverpool (1895-1901),  $16\frac{1}{2}$  cents;<sup>3</sup> Chicago-Boston-Liverpool (1894-96), 17 cents; Chicago-Philadelphia-Liverpool (1894-96), 16 cents; Chicago-Baltimore-Liverpool (1894-1900), 16 cents;<sup>4</sup> St. Louis-New York-Liverpool (1895-1901),  $18\frac{1}{2}$  cents.

All these rates,<sup>5</sup> varying between  $10\frac{1}{2}$  and  $13\frac{1}{2}$  cents for part-lake transportation and between 16 and  $18\frac{1}{2}$  cents for all-rail, are higher than the Buenos Aires rate to England (1894-98)

<sup>1</sup> All rates from Duluth by lake (1895-1901) about  $\frac{1}{2}$  cent higher than from Chicago.

<sup>2</sup> 1894-96, 12 cents.    <sup>3</sup> 1894-96,  $17\frac{1}{2}$  cents.    <sup>4</sup> 1894-96,  $15\frac{1}{2}$  cents.

<sup>5</sup> The published average through freight rates to Liverpool per bushel of wheat in the last decade were as follows :

Years.	FROM ST. LOUIS.		From Chicago to Seaboard by All-Rail.
	Via New Orleans by Water.	Via New York by Rail.	
1892.....	14	21	19.72
1893.....	14.71	21.72	20.46
1894.....	11.69	18.71	19.50
1895.....	12.13	18.33	19.20
1896.....	13.50	19.67½	20.10
1897.....	12.89	20.33	20.16
1898.....	14.24	20.32	20.61
1899.....	12.33	17.88	17.83
1900.....	14.64	18.41	17.69
1901.....	9.48	14.03	12.88

*Cf. Statistical Abstract of the United States, 1901, p. 403.* The rates from Chicago are given there in 100 pounds. Here they have been expressed in bushels of 60 pounds. The rates from Chicago are somewhat higher than those given in the above text. The reason for this is probably that the railway rates used in the text are those given by the New York Produce Exchange, while these through rates are published by the Chicago Board of Trade; and, furthermore, that the latter include the elevator charges at New York, amounting to about  $1\frac{1}{4}$  cents per bushel (*cf. Forty-second Annual Report of the Chicago Board of Trade, p. 118*).

of 8 cents and the Buenos Aires rate to German ports (1894-1900) of  $9\frac{1}{2}$  cents. Even if ample allowance is made for the rebates accorded for the railway transportation of the wheat from the primary market to the seaboard, the freight rates on wheat from those markets to Europe over any route, and also if entirely carried by water, will have been higher than from Buenos Aires to Europe.

The freight rate on wheat from the local station to the ocean had been estimated for Argentina at 7 cents, for the Pacific coast region at  $10\frac{1}{2}$  cents, for the wheat territory east of the Rocky Mountains at about 14 or 15 cents per bushel. If to these rates the different average ocean rates are added, the total freight rate per bushel of wheat to the English market would be from Argentina about 16 cents, and in the United States for the wheat shipped over the Atlantic ports about 20 cents; over the gulf ports, about 22 or 23 cents; over the Pacific ports, about 30 cents.

The conclusions which might be drawn from the preceding study may be summarized as follows: It seems that the cost of hauling the wheat from the farm to the local station is considerably lower in Argentina than in the United States; that the cost of transporting the wheat from the local station to the shipping port is lower in Argentina than in the Pacific coast region of the United States, while it will be about as high as that of transporting the wheat grown east of the Rocky Mountains on a local rate to the primary market; that the ocean rates from Argentina are considerably lower than those from the Pacific coast region, and that therefore the cost of transportation from the local station in Argentina to Europe is considerably lower than from the local station in the Pacific coast region to Europe; that while the ocean rates from Argentina are higher than from the Atlantic and gulf seaports, the difference is by far not so large as the freight rate from the primary market to the ocean in the United States; that as a consequence hereof, even if account is taken of rebates and of the existence of through rates from local stations to the ocean, the transportation from the local station in Argen-

tina to the European market is likewise lower than from the local station east of the Rocky Mountains to Europe, and that consequently the average rate for transporting the wheat from the Argentine farm to the European market is lower than from the farm in the United States.

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## AMERICAN AND GERMAN HIGH-SPEED TRAINS.

DURING recent years the newspapers and periodicals of Europe and America have contained numerous articles on the great speed at which French, but more especially American, express trains run. These articles, often containing exaggerated statements of the speed attained, have produced in Germany not a little unfavorable criticism of the management of the state railways for its failure to keep abreast of the best performances in train movement. To counteract the evil done by these adverse comments and to rehabilitate German railways in Germany, two contributions have recently appeared in the *Archiv für Eisenbahnwesen*, an official publication of the Prussian Ministry of Public Works.

The author, in the earlier of these articles,<sup>1</sup> while conceding that there are faster trains in both France and Great Britain than in Germany, nevertheless holds that on the whole the passenger train service of Germany averages better in point of speed than that of either of the other countries just named. The later article<sup>2</sup> is an intemperate attack on American railways and an impatient criticism of those who believe statements of train speed coming from America ("the classical land of exaggeration") that have not been fully vouched for. It contains a comparison favorable to German railways, as the earlier article did; this one showing that, notwithstanding there are several faster trains in the United States than any in Germany, yet on the whole the service in the latter country is more expeditious than in the former.

Whether or not the comparison instituted in the first article, of the speed of express trains in Great Britain and in the various

<sup>1</sup>"Die Fahrgeschwindigkeit der Schnellzüge auf den Haupteisenbahnen in Europa," W. SCHULZE, *Archiv für Eisenbahnwesen*, 1901, p. 124, *et seq.*

<sup>2</sup>"Die Fahrgeschwindigkeit der amerikanischen Eisenbahnen," W. A. SCHULZE, *Ibid.*, 1901, p. 782, *et seq.*

countries of Europe is a fair one will not be considered, for the data necessary to review satisfactorily the statements made are not at hand. But the second article I have no hesitation in pronouncing unfair and grossly inaccurate. The original plaint of its author is that, in Europe, not only the populace but also those who by reason of their technical training should know better, accept statements without sufficient proof that in America trains often run at a speed per hour of 120 kilometers (75 miles) and over, yes even 193 kilometers (120 miles), and that from these statements unfair conclusions are drawn. All this is not without basis, and, had Mr. Schulze been content dispassionately to correct these exaggerated statements, so as to make a fair comparison with the railways of his own country, no one would be disposed to find fault. But he goes much farther. He attempts to discredit American railways where no disparaging comment is justified, and makes unfavorable comparisons on an incomplete examination and presentation of the facts, and he even goes out of his way to belittle American locomotives and their builders.

Mr. Schulze's article, as has already been stated, is not a direct and straightforward examination of the reports of speed said to have been attained in America. Before any specific statements of speed are taken up a large amount of inaccurate and immaterial matter, accompanied by much invidious comment, is introduced, all of which is designed to prejudice the reader against American railways so that he will be reluctant to believe anything favorable of them, and will be in a receptive mood for any comment of an adverse nature, and thus be little inclined to scrutinize any statement Mr. Schulze himself may submit. As this introductory matter, although of the greater importance, is quite beside the mark, its examination will be deferred until that part of the discussion which is directed to the point at issue has been examined. After this has been taken up, the matter passed over will be considered, for much of the material presented is so misleading that it cannot be ignored. And finally, the examination of Mr. Schulze's matter having been completed, some

tables showing American and German train-speeds and frequency of service will be submitted.

In outlining his discussion the author says, "to confirm his adverse criticisms and to show that many of the statements of very high speeds on American railways rest solely on misconceptions or on errors in computation, some convincing proof will be submitted near the end of his dissertation;" and, on introducing this proof he declares, "it now only remains to be shown by a few examples, how these incorrect statements of extraordinary speed upon American railways originate and the manner in which they are disseminated by foreign and domestic papers." \*

The first to receive his attention are the mail trains between New York and San Francisco, about which he says:

On the first of January, 1899, the speed of the fast mail trains between New York and San Francisco was materially increased, the particulars of the journey of the first train from New York through Buffalo, Chicago, Omaha, Ogden, and Sacramento to San Francisco were set forth in the *Railroad Gazette* of New York for the sixth of January, 1899, and the *Engineer* of London for the tenth February and the twenty-second March, 1899 — briefly in the former journal, but at considerable length in the latter. It is stated in these reports that this train, which was composed of six mail cars and a baggage car, consumed, deducting time lost in stops, only 96 hours in the whole journey to San Francisco; and, as the total distance was 3,408 miles (5,487 kilometers), the train ran at an average speed of 35.5 miles (57.1 kilometers) per hour. According to the *Engineer* the highest speed reached upon different stretches was 60 to 75 miles (96 to 120 kilometers) per hour, while, according to the *Gazette*, upon the return journey of this train one or more miles were traversed in 35 seconds each on the Chicago & North-Western railway, over a straight and level 15 miles stretch of track between the stations of Arion and Arcadia, in Iowa. That this last statement expresses the truth, is very much to be doubted, not only because the *Engineer*, in its detailed account, makes no mention of it, but also because the attainment of a speed of a mile in 35 seconds, almost 165.5 kilometers per hour, appears hardly credible. This piece of track lies between the larger stations of Missouri Valley, Denison, and Carroll. The distance between Missouri Valley and Denison is 43.4 miles (70 kilometers), and that between Denison and Carroll 28 miles (45 kilometers), and they are traversed by the fastest train scheduled in the

Pp. 782, 797.

*Official Guide* of August, 1900, namely, the "Overland Limited Express," in 65 and 45 minutes respectively; that is, with a speed of only 64.6 kilometers from Missouri Valley to Denison, and with a speed of only 60 kilometers per hour between Denison and Carroll. It is therefore hardly thinkable that a mail train whose average speed for the whole distance between San Francisco and Chicago only equals that of the "Overland Limited Express," could, on a portion of the way, reach a speed 150 per cent. higher. And the accuracy of the report is the more to be questioned, because the *Railroad Gazette* submits its statement in indefinite form and says nothing of the way this unheard-of speed was ascertained and what, if any, precautions were taken to insure accurate results.<sup>1</sup>

Having shown to his own satisfaction that the great speed attributed to the fast mail train was never actually attained, Mr. Schulze directs his attention to the statement of more moderate speed said to have been developed. He declares that it appears equally incredible "that the so-called fast mail train on its journey to San Francisco could have attained a speed of 60 to 75 miles per hour (96 to 120 kilometers), as stated by the *Engineer*, because the time consumed in covering numerous portions of the journey is given, but over none of the divisions is a speed reached of 120 kilometers per hour."<sup>2</sup>

In introducing his last example, Mr. Schulze says:

In conclusion it still remains to be mentioned that the *Railroad Gazette* of March 22, 1901, in an article bearing the heading "120 miles an hour," reported that a mail train on the Savannah, Florida & Western railway composed of a locomotive, a mail, a baggage, and a sleeping car, on the first of March ran from Fleming to Jacksonville (149 miles) in 130 minutes, inclusive of one stop and two slow-downs, or with an average speed of 68.8 miles (110.76 kilometers) per hour. And it was further reported that near the station of Screven the stretch between the 69th and 74th mile posts was run in but 2½ minutes, that is, at a speed of 120 miles (193.2 kilometers) per hour. Because stop-watches were not used and because the time of passing each mile post was not given, the *Railroad Gazette* did not feel sure that its statements would be unreservedly accepted; but in spite of this the *Gazette* finally accepted this statement of speed as accurate [which is hardly true] because the running time taken by the traveling engineer who was on the locomotive corresponded exactly with that reported by the train dispatcher. These, even in America, unheard-of high-speed figures will for the present find no believers among us, because, according to the *Official Guide* of January, 1901,

<sup>1</sup> Pp. 797, 798.      <sup>2</sup> P. 798.

the fastest train then on the railway line between Savannah and Jacksonville through Fleming (172 miles or 277 kilometers) attained an average speed of only 65.2 kilometers in one direction and 66.5 kilometers in the other, and these trains travel over the stretch of track from Jesup through Screven to Blackshear (30 miles, or 48.3 kilometers) in 42 minutes, that is, with only a speed of 69 kilometers per hour. Accordingly the mail train, on its spurt between the 69th and 74th mile posts, would have had to exceed the speed regularly attained over this track by 180 per cent. in order to reach the speed reported. In addition, the question also arises, whether it is practicable to ascertain accurately the running time over a short stretch of five miles without speed recorders. Professional testimony seems to bring this question within the bounds of propriety. In his recent work, *The Present Express Train Service* (p. 73), Camille Barbey, director of the Yverdon St. Croix railway, says: "Speed recorders are used generally only in Switzerland, where today, without exception, each locomotive is supplied with one; it is worth while wishing that their use would become general, for this would put an end to the fantastic reports of speed, running from 160 to 180 kilometers per hour, that from time to time appear in American periodicals."<sup>1</sup>

This example completes the evidence introduced by Mr. Schulze in support of his adverse criticisms, and in proof of his assertion that reports of very high speeds coming from America rest solely on misconceptions or on errors in computation. Whatever may be thought by others of the case made out, Mr. Schulze apparently feels that he has fully substantiated his charges. For in the concluding paragraph of his article he says:

The examples that have been introduced sufficiently prove, as was asserted in my introduction, that the trustworthiness of all reports of speed emanating from America must first be ascertained before conclusions can be drawn as to what train speeds are possible of attainment. And this is especially true of all statements of trains dispatched at the high speed of 120 up to 160 kilometers per hour, where it is not particularly stated upon what portion of the railway the run took place, and what was the length of the trip, what was the time of departure and of arrival, and what were the number and kind of the cars, and also what guaranty there is that all the computations were correctly made, and that they were not, perchance, based entirely upon conjectural estimates or statements of the train officers or interested builders of express locomotives.<sup>2</sup>

I do not feel that Mr. Schulze by his criticisms has seriously impaired the standing of any of the foregoing reports of speed,

<sup>1</sup> Pp. 800, 801.

<sup>2</sup> P. 801.



for the simple reason that I do not regard the speed of regular trains as a satisfactory guide to the speed attained in emergencies, and no other evidence of any weight is introduced. Yet, as I have more than once indicated, I have nothing to say in defense of the extreme records quoted by him.

I freely confess that I am also exceedingly skeptical as to their accuracy. I would not accept any statement of speed in excess of 85 miles per hour over level track, unless it was satisfactorily vouched for. And moreover, I do not believe a speed of 120 miles an hour can be attained with any locomotive now in existence except on a steep down grade, down an incline so steep in fact that the grade would supersede the power of the locomotive as the controlling factor.

Having made these admissions, the way is clear for the examination of the statements of more moderate speed and the introduction of evidence of a positive nature. Mr. Schulze says that "it appears equally incredible that the so-called fast mail train on its journey to San Francisco could have attained a speed of 60 to 75 miles per hour (96 to 120 kilometers), as stated by the *Engineer*, because the time consumed in covering numerous portions of the journey is given, but over none of the divisions is a speed reached of 120 kilometers." This statement greatly underates the attainments of trains in America. It is conceded that a speed of 75 miles an hour is not shown over any of the divisions given in the tables of the articles quoted, but none of these divisions over the railways where the fast running was done, where the track would permit this speed, is of moderate length; and then, too, the records shown include the time consumed in getting under way and in coming to a stop. It is of course well known in this country that the fast running was done between Chicago and Council Bluffs, by the Chicago & North-Western and the Chicago, Burlington & Quincy railways, which were competitors for the mail traffic.

While neither of the railways which took part in this memorable contest kept such records of the speed attained as can be regarded as satisfactory, there can be no doubt that a speed of 75 miles per hour was often materially exceeded.

During the summer of 1900 Mr. F. A. Delano, superintendent of motive power of the Chicago, Burlington & Quincy railroad, made some tests to ascertain the extra cost of running trains at high speed. A dynamometer car was placed in the fast mail train on three of its journeys from Chicago to Burlington. On two of these journeys a speed in excess of 75 miles an hour was attained, and there was no special attempt made to obtain a record. On the second journey three successive miles were run at a speed in excess of 75 miles per hour, one being run at the rate of 79, another at 78, and another at 77.5 miles. On the third journey five miles were run at a speed of 75 or more miles an hour, the three miles over which the record was made on the preceding trip again being covered at a speed in excess of 75 miles per hour, or at 77.5, 77.5, and 77 miles respectively. These records were made between Mendota and Buda, with engine No. 1590, of the Columbia type. This engine has 18 by 26 inch cylinders, 200 pounds steam pressure, 84  $\frac{1}{4}$ -inch drivers, and a weight on the drivers of 84,450 pounds. The train consisted of the dynamometer car and four cars loaded with mail, the total weight behind the engine tender being 376,400 pounds, or 188.2 tons.<sup>2</sup>

During April and May of the present year (1902) some tests were made on the Chicago & North-Western railway to ascertain the speed between stations of their fast mail trains running between Chicago and Council Bluffs. The tests were made by Mr. Robert Quayle, the superintendent of motive power, who was assisted by Mr. Percy H. Batten and Mr. Horace H. Newsum, both of whom have had considerable experience in taking records. The speed recorder used was carefully adjusted and tested in the shops, and, after being placed on the engines, was checked with a stop-watch over stretches of track that had previously been carefully measured. On many occasions a speed of 75 or more miles an hour was recorded, and on one trip a speed of 82, on another a speed of 86, and on another a speed of 89

<sup>2</sup> The details of these tests are fully set forth in the *Report of the Proceedings of the Thirty fourth Annual Convention of the American Railway Master Mechanics' Association*, pp. 130-135, and accompanying charts and tables.

miles per hour was attained and held for a short distance. On April 28 train No. 10, between Carroll and Boone, in Iowa, ran six miles, five of which were consecutive, at a speed of 76 or more miles an hour, and for one-half of a mile maintained a speed of 82 miles per hour. The speed over the five-mile stretch was as follows for the successive miles: 76, 78, 81.5 (.5 of this mile being at 82), 78 and 76. On May 1 the record of April 28 was surpassed, 10.5 miles, 7.5 of which were consecutive, being run at a speed of 75 or more miles per hour. On this run a speed of 86 miles per hour was attained, but was held only for a very short distance, scarcely one-quarter of a mile. The speed over the 7.5 mile stretch was at the rate of the following miles per hour for the successive miles or parts thereof, 75 (for .5 of a mile), 77, 78, 81, 84 (for 1.3 miles), 86 (for almost .25 of a mile), 83 (for .5 of a mile), 80, and 77.5. On May 10 the record of May 1 was surpassed by train number 9. Of the 202 miles between Clinton and Boone, 82.5 were covered at a speed exceeding 70 miles per hour, 13.5 at a speed exceeding 80 miles per hour and 4 miles at a speed exceeding 85 miles per hour, a speed of 89 miles per hour being reached and held for about one-fourth of a mile between the stations of Mt. Vernon and Cedar Rapids.

These runs were made with four cars, by class C Schnectady engines Nos. 218, 219 and 220, which have 19 by 26 inch cylinders, 80-inch driving wheels, and a steam pressure of 190 pounds. The weight on the driving wheels, these engines being of about equal weight, is 85,700 pounds, and that on the trucks 48,100 pounds, the total weight of each being approximately 133,800 pounds.\*

As none of the records just introduced had been made public at the time Mr. Schulze wrote, he can, of course, not be censured for not knowing about them. But there was a record, fully vouched for, of some years' standing, which had been given great

\* These data were furnished by Mr. Robert Quayle, superintendent of motive power of the Chicago & North-Western railway, the tracings of the speed recorder being sent to me for examination.

publicity. that he should have known of, and about which he would have been told had he made any inquiries in this country. It may be remarked that Schulze made no attempt whatever to secure information from original sources, but was quite content to call attention to small inaccuracies, or alleged inaccuracies, in newspaper reports, and to set the speed of regular trains over against the statements he wished to discredit. The run to which I refer is the well known one of 510.1 miles made by the special train of Dr. W. Seward Webb over the Lake Shore & Michigan Southern railway on October 24, 1895. Elaborate preparations were made for taking the time of this run, as it was undertaken in the hope of setting a new world's record for long-distance running. The official time-keepers were Messrs. H. P. Robinson and Willard A. Smith—the former being the editor of the *Railway Age*, and the latter sometime chief of the transportation department at the Chicago World's Fair. The train was under the immediate charge of the general superintendent of the Lake Shore, Mr. Canniff. One of the timekeepers, taking two stop-watches in his hand, started the split second hands of both with one movement of his hand, and then to one or the other of these timepieces all the other watches on the train were set. The timekeepers had agreed to relieve each other at the stop at the end of each division, one being always on duty, and the other close at hand to verify any record on which a question might arise. The timekeeper on duty sat at one of the tables, watch in hand, and opposite to him was a representative of the railway company, with no power to originate a record, but to check each stop in case an error should be made. Across the aisle sat the official recorder and a representative of the Wagner Palace Car Co., and opposite to him a representative of the daily press.

There was fast running just before Cleveland was reached, where seven miles were covered at the rate of 83.4 miles per hour, and again between Swanville and Dock Junction, where 6.2 miles were made at a speed of 84.54 miles an hour. The best running, however, was made on the last division, eight miles

being covered at the rate of 85.44 miles per hour. The most noteworthy records made on this run were as follows:

A distance of 510.1 miles at 65.07 miles an hour.

"	"	"	289.3	"	"	66.68	"	"	"
"	"	"	181.5	"	"	69.67	"	"	"
"	"	"	85	"	"	72.92	"	"	"
"	"	"	71	"	"	75.06	"	"	"
"	"	"	59	"	"	76.08	"	"	"
"	"	"	52	"	"	78.00	"	"	"
"	"	"	42	"	"	79.04	"	"	"
"	"	"	33	"	"	80.07	"	"	"
"	"	"	8	"	"	85.44	"	"	"

The train was composed of two heavy Wagner parlor cars, each weighing 92,500 pounds, and Dr. Webb's private car Elsmere, which alone weighs 119,500 pounds. All the engines used in this relay race were built by the Brooks Locomotive Works, after designs furnished by Mr. George W. Stevens, of the Lake Shore railway. The first four engines, which drew the train as far as Erie, were of the American type, or eight wheelers, comparatively light, but built for fast running. These engines weighed only 52 tons, had 17 by 24 inch cylinders, and 72-inch driving wheels. The last engine was of a different type, being a ten-wheeler, with three pairs of coupled drivers and a four-wheeled swiveling truck. It weighed 56.5 tons, its cylinders being of the same size as those of the other engines. Its driving wheels were only 68 inches in diameter.<sup>1</sup>

I believe it has now been shown, by what must be regarded as satisfactory evidence, that, while Mr. Schulze has not gone quite so far in belittling the achievements of American railways as the newspaper reporters have gone in exaggerating them, yet he has placed far too low an estimate on their performances. But possibly he should not be censured for this; for, of course, what one sets as the limit of possible achievement is largely determined by what one is accustomed to. And, this being true, it

<sup>1</sup> This statement was prepared from material furnished by Mr. W. C. Brown, vice-president and general manager of the Lake Shore railway, and from the description of this run by Mr. H. P. Robinson, one of the official timekeepers, as given in *McClure's Magazine* for February, 1896.

would follow that, in a country where 80.9 kilometers per hour represents the average speed of the fastest regular train, the highest speed attainable under most favorable conditions would be fixed very much lower than in a country where there are regular trains having an average speed of 107.6 kilometers per hour.

It was explained, in the introductory paragraphs of this article, that Mr. Schulze made an extended excursion before beginning the discussion of his main thesis. And it was stated that the ground covered by him in this digression would be examined after the points directly at issue had been discussed. This may now be done.

Near the beginning of his article Mr. Schulze submitted a long table purporting to give a list of the fastest trains in America. This table and the comparison based upon it form the most important parts of his article, and will therefore be commented upon at some length. In introducing it Mr. Schulze says:

As it may be of interest I shall submit a table, carefully compiled from official sources,<sup>1</sup> showing the highest speed at which American trains are actually and regularly run, so that the speed of American trains can be correctly valuated, and to show also how far, in point of speed, they fall behind the unfounded statements that have been published.<sup>2</sup>

From this explanation it would be inferred that the table was introduced for two purposes—to furnish the data necessary to form a correct judgment of the speed attained by American trains, and to show that the speeds actually and regularly attained fall far short of the published statements. But the table was also used for another purpose, and one to which, by reason of the peculiar manner of its compilation it did not lend itself, viz., a comparison of the speed of American and German express trains.

<sup>1</sup> The only source of information drawn upon was the *Official Guide of the Railways and Steam Navigation Lines of the United States, Porto Rico, Canada, Mexico, and Cuba*, for August, 1900, which is published by the National Railway Publication Company, of New York, as a commercial venture. This document is not an official publication of the railway companies, and no information was obtained directly from official sources, as might be inferred from the above statement.

<sup>2</sup> *Archiv für Eisenbahnwesen*, 1901, pp. 781-782.

The purposes for which the author declared the table was introduced and the additional use made of it having been stated, we may examine the table and the discussion which follows its presentation. At the outset, for the sake of clearness, attention will be directed simply to the statements contained in the table to learn whether they are what they purport to be; in other words, the table will be examined merely as a statement of facts. After this has been done the shortcomings of the comparison instituted between American and German express trains will be set forth. The remaining point, the speed of regular trains as a criterion of that of special trains, having already been passed upon, need not be taken up again.

As it was impossible, Mr. Schulze says, to compute the speed of all trains because of the great mileage of American railways, he examined the trains on only the most important railways. More specifically he confined his investigations, as he says, to the ascertainment of the fastest train in either direction on the shortest of the main lines between the largest nine cities of the United States; namely, New York, Chicago, Philadelphia, Baltimore, Boston, Buffalo, Cleveland, Pittsburg, and St. Louis; the fastest trains between these cities and the federal capital; the fastest trains between Chicago and San Francisco, and between Philadelphia and Atlantic City. To obtain the running-time of the trains the time lost in stops at intermediate stations was deducted from the journey-time, and in all cases where the schedule gave merely the time of arrival at an intermediate station, or merely the time of departure, one minute was allowed for the stop, and one minute was also allowed where the schedule gave the same time for arrival and departure.\*

As has just been stated, Mr. Schulze said, he would present only the fastest trains on the best railways between a list of selected cities. As a matter of fact, however, he does not adhere to or succeed in fulfilling his promises. The train introduced may not be the fastest, the railway selected may be only medi-

\* P. 783. By journey-time is meant the whole time consumed by a train in making a journey.

ocre, and the route chosen may be so roundabout that no one desirous of making an expeditious journey would take it. An exhaustive review of Mr. Schulze's table, so as to point out all its defects, will not be undertaken here. Only enough evidence will be submitted to show that it has serious defects.

It is promised that the fastest train on each of the selected railways would be ascertained and then given a place in the table. But unfortunately for American railways Mr. Schulze has not always succeeded in finding the fastest train. On page 783 of his article Mr. Schulze explains that he compiled his table from the data contained in the August number of the *Official Guide of the Railways and Steam Navigation Lines of the United States* for the year 1900.<sup>1</sup> Many of the fastest trains, as is well known by those familiar with the contents of the *Official Guide*, are not scheduled in this document. These of course were overlooked by Mr. Schulze. Nearly all of the railways running out of our large cities have one or more mail trains that are run at much higher speed than the trains carrying passengers, which alone are found in the *Official Guide*. The Chicago & North-Western railway, for example, has three mail trains between Chicago and the union station in Council Bluffs, whose speed, as will be seen from the subjoined table, very materially exceeds that of its fastest passenger train, the "Overland Limited," which alone is mentioned in Mr. Schulze's table.

HIGH-SPEED TRAINS OF THE NORTH-WESTERN RAILWAY.<sup>2</sup>

TRAIN.	DISTANCE BETWEEN CHICAGO AND COUNCIL BLUFFS.		AVERAGE SPEED WHILE UNDER WAY.	
	Kilometers.	Miles.	Kilometers per Hour.	Miles per Hour.
Fast Mail No. 9.....	788.7	489.9	80.3	49.9
Fast Mail No. 10.....	788.7	489.9	76.0	47.2
Fast Mail No. 15.....	788.7	489.9	72.2	44.9
Overland Limited.....	788.7	489.9	60.7	37.7

<sup>1</sup> Any comments I may make upon the accuracy of the contents of this table will of course be based upon the same source of information so far as it covers the points discussed.

<sup>2</sup> The speed of the "Overland Limited" is that given by Mr. Schulze.



In a measure Mr. Schulze is excusable for not discovering the trains just discussed. But his failure at times to find the fastest train scheduled in the *Official Guide* cannot be so readily condoned, especially as Mr. Schulze lays great stress upon the importance of absolute accuracy, and is unsparing in his condemnation of those who do not attain it. The first trains in Mr. Schulze's table are those running between New York and Boston, the third in the list is one between these cities by the way of Albany. On its return journey this train is credited with an average running-speed of but 62.5 kilometers per hour. I find that train No. 15 on the Boston & Albany railway, in conjunction with train No. 50 on the New York Central, at the time of Mr. Schulze's investigations, made this journey of 555.4 kilometers (deducting time lost while standing at stations)<sup>1</sup> in 8 hours and 19 minutes, or at an average speed of 66.8 kilometers per hour. No. 23 of the table is a train between Chicago and Cleveland by the way of Cincinnati, and the speed of this, assumed to be the fastest train between these cities, is given as 60.9 kilometers per hour. Train No. 18, out of Chicago on the Cleveland, Cincinnati, Chicago & St. Louis railway,<sup>2</sup> together with train No. 46, out of Cincinnati on the same railway, made this journey of 915.6 kilometers (deducting the time lost at stations) in 13 hours and 45 minutes, that is, at an average speed of 66.6 kilometers per hour, or at an average speed 5.7 kilometers higher than is stated in the table. No. 33 of the table is a train between Philadelphia and Buffalo via Manunka Chunk, and the speed of this, supposedly the fastest train between these two cities, is given as 69.9 kilometers per hour. Train No. 311 on the Philadelphia & Reading railway, in conjunction with train No. 9 on the Lehigh Valley railway at the same date, made the journey between these two cities of 670 kilometers (deducting time lost at stations) in 8 hours and 53 minutes, or at an average speed of 75.4 kilometers per hour, a speed 5 kilometers in excess of that

<sup>1</sup> In the matter of deducting time, when it is not otherwise explicitly stated, I have followed Mr. Schulze's method, which was explained on p. 372.

<sup>2</sup> Popularly known as the "Big Four."

maintained by the train given a place in the table by Mr. Schulze. No. 35 of the table represents a train between Buffalo and Pittsburg by the way of Bradford, and the speed of this, supposedly the fastest train between these two cities, is given as 53 kilometers per hour. The route selected by Mr. Schulze is one of the longest, if not the longest, of the lines connecting these two cities, and the train selected, although the fastest over this (indirect) route, is not so fast as the best train on several of the other more direct lines. Train No. 11, out of Buffalo on the Lake Shore & Michigan Southern railway, and train No. 211, out of Ashtabula over the same railway, together with train No. 18, out of Youngstown on the Pittsburg & Lake Erie railway, together making a through train, made the 418.6-kilometer journey between Buffalo and Pittsburg (deducting time lost at stations) in 6 hours and 45 minutes, that is, at an average speed of 62 kilometers per hour, or at an average of 9 kilometers more per hour than is stated in the table. It would require much less time to go by the roundabout way of Cleveland and Youngstown over the Lake Shore & Michigan Southern, the Erie, and the Pittsburg & Lake Erie railways, than by the route selected by Mr. Schulze. These examples show that Mr. Schulze's table has serious defects, and that his results cannot be accepted without verification.

It has now been seen in what measure the promise to introduce only the fastest trains is fulfilled. Let us see if greater success is attained by Mr. Schulze in the selection of railways; for it will be remembered that the author professes that only the fastest trains on the best railways are given a place in the table. The second group of Mr. Schulze's table, numbers 4 to 8 inclusive, comprises the trains between New York and Buffalo. The following railways are represented: New York Central & Hudson River railroad, with a train having an average speed for the whole journey of 87.2 kilometers per hour; Lehigh Valley railroad, with a train having an average speed of 76.5 kilometers per hour; Delaware, Lackawanna & Western railroad, with a train having an average speed of 70.1 kilometers per hour; West

Shore railroad, with a train having an average speed of 65.5 kilometers per hour; and finally the Erie railroad, with a train having an average speed of 65 kilometers per hour. It would be needless, even if the speed of the trains on the respective railways had not been given, to explain to American readers that these railways are not of the same rank, and this fact should have been realized by Mr. Schulze after his computations were made. Instead of including only the best railways he has introduced all the railways between New York and Buffalo, except the Pennsylvania, whose line is exceedingly roundabout. This point may not at present appear to be of much significance, but it is really of great weight, as will be seen later, where the average speed of the fastest trains on what are said to be the best railways of America is compared with the average speed of the fastest trains in Germany. In such a comparison, of course, the trains selected to typify the different countries becomes a matter of the first importance, but this is anticipating my argument. No more illustrations will be introduced to show how unfortunate Mr. Schulze's selections were; but it is not to be inferred from this fact that in all other cases only the best railways are given a place in his table; such, in fact, is not the case, as could readily be shown were it worth while.

It was not only stipulated that only the fastest trains on the best railways would be included in the table, but also that only the fastest trains on the best railways having the most direct routes would be found there. If the last qualification were rigidly adhered to, some of the fastest trains would be excluded, for the fastest trains are often found on the longer lines. The trains of the best railways running between any two large cities usually make the journey, by agreement, in the same or about the same time, regardless of the distance that must be traveled; witness the limited trains between Chicago and New York on the Lake Shore & Michigan Southern, and New York Central & Hudson River railways on the one hand, and the Pittsburg, Fort Wayne & Chicago, and the Pennsylvania railways on the other hand. But here again Mr. Schulze did not live up to his profes-

sions. He did not confine himself to the fastest trains on the most direct routes, and did not omit any specially fast train because it ran in a roundabout way. But he did include several trains whose routes were very indirect and whose average speed was relatively very low. For example, who, if he were in haste, would think of going to Boston from New York by the way of Albany, or who would go to Cleveland from Chicago by the way of Akron? The latter journey, on the train cited by Mr. Schulze, would involve changing cars at Chicago Junction, Ohio, a journey from there on a local train to Akron which makes seventeen stops in the short distance of 74.5 miles, or one every 4.4 miles, and a journey on a slow train from Akron to Cleveland. These errors and those cited in the preceding paragraphs show that Mr. Schulze's table contains many very serious imperfections and omissions.

Although the inaccuracies already pointed out quite destroy the value of the table, there yet remain a number of further errors of such importance as to call for comment. Those that have just been discussed were due, it may be said, to a lack of care, while the further faults that must receive attention may be attributed to a want of knowledge of conditions existing in America. Mr. Schulze's table contains many trains which either begin or end their journey in New York city. Of the 42 trains found in the table, 18 start from New York city, and of these 5 leave over the New York Central & Hudson River and the New York, New Haven & Hartford railways, and therefore really start from New York city. The remaining 13 trains do not start from New York city, but from the New Jersey shore, the passengers crossing the Hudson river on ferryboats. Now, the schedule time of departure from New York city is the hour the ferryboat leaves, and it is hardly fair to charge this time to the train which is waiting on the other side of the river. It seems the more unfair to do this because the distance across the river is generally not added to the mileage actually run by the train.\* To all trains this addition of from 13 to 15 minutes to

\* This fact should have been a sufficient hint to Mr. Schulze that he would err if he took the New York city time as the time the train departed.

their running time is a matter of some importance, and to the short distance trains is a matter of great moment. For example, train No. 85 for Philadelphia, on the Pennsylvania railroad, is scheduled to leave Desbrosses street, and Cortland street also, at 4 P. M., but, as a matter of fact, the ferryboats leave at 4 o'clock, the train starting from Jersey City at 4:13 P. M. Here, then, is an error of 13 minutes in the time of the departure of this train, and, as the run is a short one, the speed of this train consequently is very materially understated. Mr. Schulze, allowing 3 minutes for three stops, reports that it runs at an average speed of 75.4 kilometers per hour, while it really runs, allowing 2 minutes for two stops, at an average speed of 82.6 kilometers per hour. This example is sufficiently convincing, especially when it is remembered that 13 of the 42 trains altogether cited by Mr. Schulze are affected by this error at New York alone, and that there are others affected by a like error at Philadelphia, Detroit, and San Francisco. It shows how the value of Mr. Schulze's table is impaired by his lack of knowledge in this one respect.

One comment on the table yet remains to be made. Where the *Official Guide* merely gave the time of arrival at or merely the time of departure from intermediate stations, and in all cases where the train was scheduled to depart the same instant it was scheduled to arrive, Mr. Schulze allowed one minute for the stop. In Europe this allowance may be sufficient, but it is not so here. For example, according to the table, the "Overland Limited" of the Chicago & North-Western railway, loses but 25 minutes in stops between Chicago and Omaha, while in point of fact it loses 96 minutes. There are 25 stops, instead of 17, as shown in the table. A number of the stops which were assumed to be but one minute each in length actually lasted several minutes. For example, there is a stop of 5 minutes at Clinton, and one of 6 minutes at Cedar Rapids, for which together only 2 minutes were allowed. According to the *Official Guide* 35 minutes are consumed in going from Council Bluffs to Omaha, a distance of only three miles; but, as a matter of fact, all but 12

of these 35 minutes are lost at Council Bluffs and the Union Pacific transfer, 12 minutes being an abundance of time to run the three miles. At these four stops a total of 30 minutes is lost, over what Mr. Schulze allowed. The long delay at the Union Pacific transfer is due to the fact that the train is here made ready for the initial portion of its journey across the plains.<sup>1</sup> If 96 minutes, the actual time lost in stops, be deducted instead of 25 minutes, the time allowed by Mr. Schulze, the average speed of the "Overland Limited" between Chicago and Omaha will become 66.6 kilometers per hour, instead of 60.7 kilometers, as given by Mr. Schulze. This difference of 5 kilometers shows that the rule of rough approximation adopted produces variations from the true figures so wide that the results obtained cannot be accepted.

We may now turn from this examination of the table, undertaken to ascertain if it was compiled in conformity with the author's stipulations, to the comparison instituted between German and American express trains.

A comparison [Mr. Schulze says] of the table just discussed, showing American express-train speeds, with the table appearing on page 124 *et. seq.* of the *Archiv für Eisenbahnwesen* for 1901, giving the average speed of the express trains of Germany, will show, if the fast trains between Philadelphia and Atlantic City, which are run under special conditions, be dropped out of consideration, not only that equally high average speeds are reached, but even higher averages are attained than in America.

According to these tables an average, Mr. Schulze says, in excess of 65 kilometers per hour is attained by only 26 trains in America, while this speed is attained or exceeded by 36 trains in Germany.<sup>2</sup>

For many reasons, some of which have already been indicated, the comparison here instituted by Mr. Schulze is of very slight value, if any. First of all it should be understood that it is really not a comparison of the average train speed of America with that of Germany, for the average of neither country has

<sup>1</sup> These facts were furnished by Mr. R. H. Aishton, general superintendent of the Chicago & North-Western railway.

<sup>2</sup> *Archiv für Eisenbahnwesen*, 1901, p. 796.

been computed. The table for America contains but 42 trains and that for Germany but 46; so that it is nothing short of the absurd to speak, on this basis, of German express-train speeds averaging higher than American.

For the time being let it be assumed that the table for America is free from the many serious omissions and inaccuracies pointed out in the preceding paragraphs. With this assumption in mind, do the tables warrant the conclusion drawn from them by Mr. Schulze? This question can only be answered in the negative, for the tables are not comparable.

Before calling attention to Mr. Schulze's errors and omissions it may be asked why the trains between Philadelphia and Atlantic City are altogether omitted from the comparison. To be sure, the very fastest trains on both of the railways concerned did not run during the winter months at the time Mr. Schulze wrote; but this is not a sufficient reason for dropping the trains between these two cities entirely out of the comparison, for there were several trains over each of the railways whose average speed, both winter and summer, exceeded Mr. Schulze's figures of 65 kilometers per hour. Mr. Schulze was aware of this, for at another point he states that a winter train on one of the railways had an average speed of 89.4 kilometers per hour, and one on the other railway an average speed of 82.6 kilometers.<sup>1</sup> Even the lower of these speeds is higher than that attained on any German railway in the comparison.

As has already been stated, the territorial scope of the two tables is not coextensive. The one for Germany was said to contain, and in all probability does contain, the fastest trains in the whole empire, regardless of the cities between which they run, while the table for America only contains the trains between a few cities.

It will be remembered that Mr. Schulze explained that the task of computing the speed of all American trains was so great that he would not attempt it. To bring his labors within what

<sup>1</sup> *Archiv für Eisenbahnwesen*, 1901, p. 794.

he deemed proper bounds, he confined his investigations to the railways between a few large cities. Consequently the table, even if this limited field had been properly covered, would have had but slight value for comparative purposes. Many of the most important lines received no consideration whatever. For example, the great railways radiating north, west, and southwest, and at least one running south, from Chicago, the second city of the union in population, were wholly ignored; with the single exception of the Chicago & North-Western railway, whose Chicago-Council Bluffs line was represented by the "Overland Limited," a train whose speed, as I have shown on page —, is exceeded by three other trains over the same track. These railways, centering in Chicago, have many trains in the aggregate between Chicago, on the one hand, and Milwaukee, Madison, Cedar Rapids, Rock Island, Des Moines, Burlington, Council Bluffs, Ft. Madison, and Champaign, on the other hand, that have an average speed in excess of 65 kilometers per hour. Even the excellent service between Chicago and Milwaukee on the Chicago & North-Western and on the Chicago, Milwaukee & St. Paul railways received no consideration at Mr. Schulze's hands.

For the comparative purpose for which it is used, the table of American trains is unsatisfactory for still other reasons. It does not include all the trains between the few cities that were selected by Mr. Schulze having an average speed above 65 kilometers per hour. A place in the table should have been given to train No. 43, between Boston and New York, via Springfield, over the New York, New Haven & Hartford and the Boston & Albany railways, with an average speed of 69.1 kilometers per hour; to train No. 24, between Cleveland and Pittsburg, via Youngstown, over the Erie and the Pittsburg & Lake Erie railways, with an average speed of 66.8 kilometers per hour; to train No. 503, between New York and Pittsburg, via Baltimore, over the Royal Blue line,<sup>1</sup> with an average speed of 66.4

<sup>1</sup> The Pennsylvania is erroneously stated by Mr. Schulze to be a link in this line.—*Archiv für Eisenbahnwesen*, 1901, p. 795. He should have said "Philadelphia & Reading railway."



kilometers per hour; and to train No. 311, between Philadelphia and Buffalo, over the Philadelphia & Reading and the Lehigh Valley railways, with an average speed of 75.4 kilometers per hour. These are a few of the many trains that must be taken account of to make the comparison effective, even for the limited district it was said to cover.

A comparison of the two tables is misleading for another reason. In the case of all German trains the average speed per hour of runs without a stop, of 90 kilometers or more, is also given, and this speed, when higher than the average speed maintained between the termini, was taken as the average speed of the train, while in the case of the American trains this additional information was generally given only in case of the *fastest* trains. This special treatment carried six German trains from the group having a speed of less than 65 kilometers per hour into the group having an average speed of 65 or more kilometers per hour. At the same time the average speed between termini of several of these trains fell considerably below 65 kilometers per hour. Only three American trains were lifted over the dividing line by the use of this device. Had the *slower* American trains been accorded as favorable treatment as the German trains, few if any of them would have been found in the class showing a speed of less than 65 kilometers per hour.

By still another device German train service is made to appear to much better advantage than it deserves. Several of the fastest German trains are broken up, and thus each one counts for two or more trains. For example, the "Orient Express," which runs through Germany from Avricourt to Salzburg, a distance of 659 kilometers, appears in the table three different times; the "North and South Express," which runs from Berlin to Kufstein, a distance of 753 kilometers, appears in the table two different times; the "North Express," on its journey from Herbesthal to Hannover, a distance of 410 kilometers, appears to be counted as two different trains; and a Berlin-St. Petersburg express, on its journey from the former city to Eydtkuhnen, on the German frontier, a distance of 742 kilometers, appears in the table as two different trains.

It is misleading to count each one of these trains in the comparison as two or even three trains, while the "Lake Shore Limited," running from Chicago to New York, a distance of 1,578 kilometers; the "Pennsylvania Limited," running between the same cities; the "Overland Limited," running from Chicago to San Francisco, a distance of 3,895 kilometers, each counts as but a single train. This is especially true of the "Overland Limited;" for, at the time Mr. Schulze wrote, it ran over three entirely independent railways, namely, the Chicago & North-Western, the Union Pacific, and the Southern Pacific.

The possibilities of train multiplication, should this divisional method be applied to American railways, can be inferred from an examination of one of the trains just cited. If the "Lake Shore Limited" were treated the same as the "Orient Express," it would yield seven trains instead of but one.

While these examples show great diversity of treatment, there are other instances in the tables which show even greater discrepancy. No. 23 of the American table purports to be a train from Chicago to Cleveland by the way of Cincinnati—a route, by the way, over which, it is needless to say, no one travels. To make this journey would be like going from Brussels to Berlin by the way of Zürich. Of course, no one train makes this whole journey; an entirely different train makes the trip from Cincinnati to Cleveland than the one which starts from Chicago. The integration of these two trains in the table appears doubly misleading, because, while no two trains over the same railway making a good connection at Cincinnati ran the entire distance of 916 kilometers at an average speed in excess of 65 kilometers per hour, there were at the same time two trains, one running from Chicago to Cincinnati over the "Monon" route, and the other from Cincinnati to Cleveland over the "Big Four," but making an indifferent connection at Cincinnati, each of which exceeded this speed. The method of treatment employed by Mr. Schulze yielded no train of sufficient speed to receive consideration; the other would have yielded two. Of course, I do not wish to be understood as intimating that this discrepancy

explains why the two trains over this exceedingly roundabout route were linked together in this manner.

What is a fair basis of comparison? a basis upon which the train service of one country can be contrasted with that of another? That these are pertinent questions the preceding paragraphs have abundantly shown. No comparison of any value can be instituted until the things compared have been reduced to a common unit. I shall not attempt to point out in detail the factors that must be harmonized to secure valuable results, for most of them will appear at once to anyone of a judicial mind. A few of these factors, however, must be briefly dwelt upon.

In the comparison instituted by Mr. Schulze the element of distance does not receive any consideration. For the most part the American trains selected by him ran between cities widely separated. This is shown by comparing the distances run by the trains found in the German and the American table. The aggregate distance traversed by the 42 American trains was 34,791 kilometers, and the average distance was 828 kilometers, while the total distance run by the 46 German trains was but 14,540 kilometers, and the average distance was but 316.1 kilometers. Distance affects speed in two ways. Great stretches of track without sharp curves and free from mountain ranges to be overcome, wide rivers to be crossed, perhaps ferried, and large cities to be passed through, are rare, and it is therefore much more difficult, from the physical point of view, to maintain a high speed over a great distance. For instance, the "Overland Limited," one of the trains selected by Mr. Schulze, must cross, on its journey from Chicago to San Francisco, two wide rivers and three mountain ranges, and, finally, a wide bay by ferry. Some idea of the grades to be overcome may be inferred from the elevations above the sea of the following places which are successively passed through on a westward journey to the Pacific coast: Omaha, 1,031 feet; Sherman, on the continental divide, 8,247; Green River, 6,077; Aspen, 7,395; Ogden, 4,301; Summit (at the top of the

Sierras), 7,017; and San Francisco, 14. The trains running between the cities of the Atlantic coast and those of the Mississippi Valley must cross the Alleghany mountains and their outlying elevations, and several must be ferried across the Detroit River. These examples should show how difficult it is to maintain a high average speed for the great distances cited by Mr. Schulze, and should suggest how necessary it must be for the purpose which he has in view, to eliminate great natural and artificial obstacles by breaking up long runs and dropping from consideration stretches of track which for any reason are unfavorable to the maintenance of high speed.

In the preceding paragraph it has been shown that physical obstacles are likely to intervene and render impossible the maintenance of high average speed for a great distance. A regard for the convenience of the greatest possible number of travelers often makes it undesirable to maintain a uniform high speed between distant points, even where physical obstacles do not prevent. There are hours of the day, but more especially of the night, when passengers do not care to take or leave a train. Trains must arrive at, and depart from, the great centers of population at such hours as will least interfere with the transaction of business and promote in the largest degree the comfort of those who travel.

A schedule of trains made up in conformity with these considerations will show great variations of speed over different sections of track by trains which have about the same average speed between the distant termini. One train may run over one division at a high rate of speed, and another may attain its highest speed over another portion of track or between different cities. The speed attained will depend upon the particular set of patrons whom the train is intended to serve. This being so, it becomes apparent that a small unit of distance is much more likely to show a great number of high-speed trains than a large one.

That this is true is made clear by the following table of trains between St. Louis and Pittsburg. Train No. 2 is the

one selected by Mr. Schulze. The computations are made on the basis adopted by Mr. Schulze, as explained on page 372, and the data are taken from the source of information cited by him.

TRAINS FROM ST. LOUIS TO PITTSBURG.

(Via P., C., C. & St. L. R. R.)

TRAIN NUMBER.	ST. LOUIS TO PITTSBURG.		DIVISIONS.			
			St. Louis to Indianapolis.		Indianapolis to Pittsburg.	
	Distance, <sup>1</sup> Kilometers.	Average Speed per Hour, Kilometers.	Distance, Kilometers.	Average Speed per Hour, Kilometers.	Distance, Kilometers.	Average Speed per Hour, Kilometers.
2	988.5	61.8	386.4	66.4	602.1	58.9
14	988.5	57.9	386.4	49.2	602.1	65.3

This table makes it apparent that the best showing can be made by breaking up long routes into short ones, a procedure which makes it possible to select different trains for different sections of track. According to the method of computation adopted by Mr. Schulze, there was no train over this route having an average speed so high as 65 kilometers per hour. While the method followed in the table, which was the one used by Mr. Schulze in computing the speed of German trains, shows two trains having a speed in excess of 65 kilometers per hour, Train No. 14 being a night train out of St. Louis, there is no need for haste in getting to Indianapolis, as this city can easily be reached at as early an hour in the morning as the passengers will care to leave the train, and consequently the train drags along at rate of but 49.2 kilometers per hour. Train No. 2, on the other hand, is an afternoon train, and there is no time to lose if Indianapolis is to be reached early in the evening, so the train is pushed along at an average speed of 66.4 kilometers per hour.

It does not appear to me that much light can be thrown upon

<sup>1</sup>Mr. Schulze gives this distance as 1,000 kilometers. This is an over-statement; these trains run via Dayton, not via Bradford Junction, as assumed by him.

the comparative value of the train service rendered in different countries by the method here followed by Mr. Schulze. The computation of the average speed per hour of all the trains of the countries under consideration being out of the question, because of the magnitude of the work involved, it must be admitted that a more satisfactory answer than that obtained by Mr. Schulze to the question whether the train service of one country is better than that of another can be found in a thorough comparison of the service between a few cities. Such a comparison would not only be qualitative, but quantitative as well. Obviously, if in one country twice as many trains at a given rate of speed are run over the selected railway as in another country, a comparison which turns upon the rate of speed alone is faulty in method.

To obtain valuable results the cities must be separated by approximately equal distances, the country traversed must have the same physical characteristics, and the cities chosen must be as nearly equal in population as can be, or they must be on routes of travel of equal importance. Strange to say, the plan just outlined was followed by Mr. Schulze in the comparisons made by him of the train service of Germany, France, and Great Britain,<sup>1</sup> and why the same method was not employed by him in contrasting the speed of American and German express trains is not apparent.

On the following page a table will be found showing the number and speed of the trains on two German and two American lines. The German lines are those between Berlin, the imperial capital, and Hamburg, the next largest city, and between Berlin and Cologne, which is one of the great western gateways of travel. The American lines are those between New York (Jersey City)\* and Washington, and between New York and Buffalo. The service on these lines fairly reflects the best service of the respective countries for medium and long-distance runs. At any rate the German lines are those selected by Mr.

<sup>1</sup> *Archiv für Eisenbahnwesen*, 1901, pp. 144-151.

\* All of the trains for Washington start from the western shore of the Hudson, as do many of those for Buffalo.

Schulze for comparison with French and English trains, and it may therefore be assumed that they represent the best service that can be found in the empire. It is to be noted that in each case the run of the American train is materially longer than that of the German train. In this table only the trains running in one direction are given. The distance given at the head of the columns is the short-line distance; the other distances can be found in the more detailed tables which follow. To enable the eye to grasp the figures easily they are grouped by rates of speed, beginning with the highest speeds. The speed of the trains has been computed on the basis adopted by Mr. Schulze, and explained on page 372 of this article. If any points still remain in doubt, they will probably be found explained in the introduction, beginning on page 44, to the detailed tables.

**EXAMPLES OF GERMAN AND AMERICAN TRAIN SPEEDS.**  
Average Running-Speed per Hour.

MEDIUM DISTANCE TRAINS.				LONG DISTANCE TRAINS.			
Berlin to Hamburg, 178 Miles, or 286 Kms.		New York to Washington, 224 Miles, or 361 Kms.		Berlin to Cologne, 358 Miles, or 576 Kms.		New York to Buffalo, 409 Miles, or 658 Kms.	
Miles.	Kms.	Miles.	Kms.	Miles.	Kms.	Miles.	Kms.
50.2	80.9	50.2	80.8			54.2	87.2
50.1	80.6	50.2	80.8			48.2	77.6
49.8	80.2	50.1	80.6			44.2	71.2
		48.4	77.9	43.3	69.8	43.1	69.5
		48.1	77.4	42.6	68.6		
		47.9	77.1	42.0	67.6	42.1	67.8
		46.6	75.0	42.0	67.6	41.8	67.3
		46.5	74.9			41.8	67.2
		45.7	73.5			41.1	66.1
45.5	73.3	45.6	73.4	40.8	65.7	40.9	65.9
		44.8	72.0			40.9	65.9
		44.2	71.2	39.9	64.2	40.1	64.5
		43.5	70.1	39.8	64.1	40.0	64.3
		43.1	69.5			39.9	64.1
		42.7	68.8	39.6	63.8	39.7	63.9
		42.6	68.7			39.4	63.5
		42.5	68.4			38.8	62.5
		42.5	68.4			38.0	61.2
		42.1	67.8	37.6	60.6		
		41.8	67.4				
40.0	64.3						
38.6	62.2						
36.3	58.4						

If the service on the routes selected is typical of that of the two countries under consideration, it is obvious that the train service of American railways is greatly superior to that of the German railways. The trains are not only run at a higher rate of speed but much more frequently than on the German railways. Both American routes are longer than the corresponding German routes, and the physical obstacles to be overcome are greater. The average speed of the seven trains running from Berlin to Hamburg is but 71.4 kilometers per hour, while the average speed of the best seven trains running from New York to Washington is 78.5 kilometers per hour, and the average speed of the twenty express trains running between these cities is 73.2 kilometers per hour. The average speed of the nine trains running from Berlin to Cologne is but 65.8 kilometers per hour, while that of the best nine trains running from New York to Buffalo is 71.1 kilometers per hour, and the average speed of the seventeen express trains running between these cities is 67.6 kilometers per hour.

The second point, and the one to which I wish especially to direct attention, is the greater number of high-speed trains on American railways. It was originally contended that a route over which but one fast train runs daily should not count for as much in a comparison as a route over which several fast trains run. The facts presented in the table illustrate and emphasize this point. It will be remembered that, in the comparison instituted by Mr. Schulze, trains which reached or exceeded a speed of 65 kilometers per hour, were called fast trains. Applying this standard to the trains of the foregoing table, we find there are 20 fast trains running over the two routes from New York to Washington, and but 4 fast trains running over the one route from Berlin to Hamburg; and we find that there are 10 fast trains running over the 5 routes from New York to Buffalo, and but 5 fast trains running over the four routes from Berlin to Cologne. The contention that a comparison to be of value must be quantitative as well as qualitative has been made clear by this table.



The true character of the service over a line of railway does not appear from a single train. In England and Germany, but more especially in France, and several of the other countries of Europe, the train service indicates the social strata found in these countries. There are a few fast trains for the well to do who pay very high rates, but very slow trains with inferior equipment for the ordinary traveler. To be sure excess fares must be paid on several American trains, but they are very few in number, and the present tendency is decidedly toward a uniform rate for all trains. American readers, at least, need not be told that the strong lines between the east and the west would gladly introduce a uniform rate, and are only prevented by the opposition of the weaker lines. In the West the same spirit prevails. Sooner than concede the excess-fare principle for fast trains, the Chicago & North-Western railway, which recently cut down the running time between Chicago and Omaha of its "Overland Limited" train fifty minutes, upon the demand of those who were either unable or unwilling to make a corresponding reduction of time, practically restored its train to its old schedule.

In the succeeding tables detailed information will be found as to the trains whose speed is given in the preceding table. The first column, in the case of American trains, shows the number by which the train is designated by the company operating it. Officially the train is always designated by this number, although it may be popularly known by some name such as the "Overland Limited" or "Colorado Special." In the case of the German trains the first column simply shows the running number. The second column indicates the route over which the train runs. This is done either by giving the name of the company operating the train, from which the route can be inferred, or by giving the names of a few cities determinative of the route. It was thought that the former method would be more satisfactory in reporting American trains, as it would give most persons a general idea at least of the route followed. The third and fourth columns show the length of the route traversed by the train immediately under consideration. Care has been taken in ascertaining these

distances, for in the case of the short-distance trains a slight error in mileage would materially affect the computed speed of the train. It is to be noted that the through trains between New York (Jersey City) and Washington on the Pennsylvania railroad run to the Union station in Baltimore. The distance from this

EXPRESS TRAINS FROM BERLIN TO HAMBURG.

NUMBER.	ROUTE.	WHOLE DISTANCE.		TIME OF		JOURNEY TIME.		STATION- STOPS.		RUNNING TIME.		RUNNING SPEED PER HOUR.	
		Miles.	Kilometers.	Departure.	Arrival.	Hours.	Minutes.	Number.	Time Lost.	Hours.	Minutes.	Miles.	Kilometers.
1	Via Wittenberge.	178	286	6:30	10:06	3	36	1	4	3	32	50.2	80.9
2	" "	"	"	7:20	10:58	3	38	1	4	3	33	50.1	80.6
3	" "	"	"	8:17	4:57	3	40	2	6	3	34	49.8	80.2
4	" "	"	"	9:08	1:04	4	4	4	10	3	54	45.5	73.3
5	" "	"	"	9:50	10:23	4	53	20	26	4	27	39.9	64.3
6	" "	"	"	10:37	11:41	5	4	21	28	4	36	38.6	62.2
7	" "	"	"	12:06	5:29	5	23	19	29	4	54	36.3	58.4

EXPRESS TRAINS FROM NEW YORK (JERSEY CITY) TO WASHINGTON.

TRAIN NUMBER.	RAILROAD.	WHOLE DISTANCE.		TIME OF		JOURNEY TIME.		STATION- STOPS.		RUNNING TIME.		RUNNING SPEED PER HOUR.	
		Miles.	Kilometers.	Departure.	Arrival.	Hours.	Minutes.	Number.	Time Lost.	Hours.	Minutes.	Miles.	Kilometers.
535	Royal Blue Line.	229.3	369	1:12	6:00	4	48	7	14	4	34	50.2	80.8
527	" " "	"	"	11:42	4:30	4	48	7	14	4	34	50.2	80.8
500	" " "	"	"	3:12	8:00	4	48	6	13	4	35	50.1	80.6
67	Pennsylvania R. R.	227.4	366	1:14	6:10	4	56	6	14	4	42	48.4	77.9
59	" " "	224.4	361	3:44	8:30	4	46	4	6	4	40	48.1	77.4
51	" " "	227.4	366	11:14	4:10	4	56	5	11	4	45	47.9	77.1
49	" " "	"	"	10:32	3:40	5	8	5	15	4	53	46.6	75.0
501	Royal Blue Line.	229.3	369	10:12	3:30	5	18	10	22	4	56	46.5	74.9
517	" " "	"	"	8:12	1:40	5	28	20	27	5	1	45.7	73.5
525	" " "	"	"	5:12	10:30	5	18	10	16	5	2	45.6	73.4
45	Pennsylvania R. R.	227.4	366	8:15	1:42	5	27	9	22	5	5	44.8	72.0
503	Royal Blue Line.	229.3	369	7:12	12:50	5	38	10	27	5	11	44.2	71.2
505	" " "	"	"	4:42	10:35	5	53	18	37	5	16	43.5	70.1
31	Pennsylvania R. R.	227.4	366	1:15	6:50	5	35	10	19	5	16	43.1	69.5
35	" " "	"	"	9:15	2:51	5	36	8	17	5	19	42.7	68.8
63	" " "	"	"	4:45	10:20	5	35	4	15	5	20	42.6	68.7
65	" " "	"	"	5:14	10:55	5	41	9	20	5	21	42.5	68.4
57	" " "	"	"	2:32	8:15	5	43	10	22	5	21	42.5	68.4
60	" " "	"	"	3:45	9:29	5	44	6	20	5	24	42.1	67.8
507	Royal Blue Line.	229.3	369	1:42	7:50	6	8	19	39	5	29	41.8	67.4

city to Washington usually reported is the distance from the Calvert street station. The "Congressional Limited," on the Pennsylvania, which is train number 59, does not follow exactly the same route as the other trains on this railway from New York (Jersey City) to Washington. It does not run into the Broad street station in Philadelphia, but stops at the Powelton avenue station, and thus reduces the whole distance by a total of 2.92 miles in running in and out of Philadelphia. Mr. Schulze reports the distance run by this train as 370 kilometers, but the actual distance is 361 kilometers. In the case of the "Royal Blue" trains he understates the distance by two kilometers, although he allows one mile for the Hudson river, for which I allow nothing. The through trains between New York (Jersey City) and Washington over this line do not run into the Reading terminal in Philadelphia, but to the Twenty-fourth and Chestnut streets station. In columns 5 and 6 the boldface type represents afternoon time. By journey-time, as has already been explained, is meant the total time elapsing from the moment of the departure of the train from the initial station to the moment it comes

## EXPRESS TRAINS FROM BERLIN TO COLOGNE.

NUMBER.	ROUTE.	WHOLE DISTANCE.		TIME OF		JOURNEY TIME.		STATION- STOPS.		RUNNING TIME.		RUNNING SPEED PER HOUR.	
		Miles.	Kilometers.	Departure.	Arrival.	Hours.	Minutes.	Number.	Time Lost.	Hours.	Minutes.	Miles.	Kilometers.
1	Via Stendal, Hannover, and Essen.....	362.1	583	8:55	5:46	8	51	11	30	8	21	43.3	69.8
2	Via Magdeburg, Hannover and Essen.....	380.8	613	9:30	7:08	9	38	13	42	8	56	42.6	68.6
3	Via Stendal, Hannover, and Essen.....	362.1	583	11:01	8:00	8	59	6	21	8	38	42.0	67.6
4	Via Stendal, Hannover, and Oberhausen.....	363.9	586	11:45	9:05	9	20	14	40	8	46	42.0	67.6
5	Via Magdeburg, Hildesheim, and Soest....	357.7	576	1:05	10:26	9	21	14	35	8	46	40.8	65.7
6	Via Stendal, Hannover, and Oberhausen.....	363.9	586	7:04	11:59	16	55	27	467	9	8	39.9	64.2
7	Via Stendal, Hannover, and Essen.....	362.1	583	9:50	7:51	10	1	19	55	9	6	39.8	64.1
8	Ibid.....	"	"	1:08	11:00	9	52	20	44	9	8	39.6	63.8
9	Ibid.....	"	"	7:40	6:46	11	6	26	89	9	37	37.6	60.6

to a stop at its final destination. By running-time is meant the journey-time minus the time lost in station-stops. For the trains of this country, this, of course, seldom gives the actual running-time, because of the numerous grade crossings which still exist and which frequently necessitate a full stop. But, as there were usually no data to compute the time thus lost, it was thought best to wholly ignore these stops.

## EXPRESS TRAINS FROM NEW YORK TO BUFFALO.

TRAIN NUMBER.	RAILROAD.	WHOLE DISTANCE.		TIME OF		JOURNEY TIME.		STATION- STOPS.		RUNNING TIME.		RUNNING SPEED PER HOUR.	
		Miles.	Kilometers.	Departure.	Arrival.	Hours.	Minutes.	Number.	Time Lost.	Hours.	Minutes.	Miles.	Kilometers.
51	N. Y. C. & H. R. R. R.	440.0	708	8:30	4:45	8	15	4	8	8	7	54.2	87.2
9	Lehigh Valley R. R.	446.6	720	12:14	9:55	9	41	13	25	9	16	48.2	77.6
3	Del., L. & W. R. R.	409.0	658	10:15	8:00	9	45	22	30	9	15	44.2	71.2
3	N. Y. C. & H. R. R. R.	440.0	708	8:45	7:20	10	35	6	23	10	12	43.1	69.5
11	" " " " " "	"	"	1:00	11:55	10	55	6	28	10	27	42.1	67.8
19	" " " " " "	"	"	5:30	4:15	10	45	4	14	10	31	41.8	67.3
1	West Shore R. R.	428.2	689	3:15	1:50	10	35	8	20	10	15	41.8	67.2
1	Erie R. R.	423.0	681	9:15	8:00	10	45	19	27	10	18	41.1	66.1
17	N. Y. C. & H. R. R. R.	440.0	708	4:00	3:10	11	10	13	25	10	45	40.9	65.9
7	Lehigh Valley R. R.	446.6	720	8:15	7:55	11	40	16	45	10	55	40.9	65.9
9	Del., L. & W. R. R.	409.0	658	9:00	7:45	10	45	21	33	10	12	40.1	64.5
29	N. Y. C. & H. R. R. R.	440.0	708	8:00	7:25	11	25	10	24	11	1	40.0	64.3
21	" " " " " "	"	"	2:00	1:30	11	30	15	27	11	3	39.9	64.1
33	" " " " " "	"	"	9:20	8:45	11	25	6	20	11	5	39.7	63.9
19	West Shore R. R.	428.0	689	8:30	7:55	11	25	9	33	10	52	39.4	63.5
7	Erie R. R.	423.0	681	7:45	7:05	11	20	14	26	10	54	38.8	62.5
23	N. Y. C. & H. R. R. R.	440.0	708	6:00	6:00	12	0	9	26	11	34	38.0	61.2

I believe it has now been shown that Mr. Schulze's table neither furnishes the promised "safe and satisfactory guide to the speed of American trains" nor a proper basis for a comparison of the speed of American and German express trains. Perhaps it has also appeared, as the discussion proceeded, that the statistical matter appearing in at least one scientific journal, as well as that which found a place in some American and foreign newspapers, greatly needs verification before it can be accepted.

GEORGE G. TUNELL.

CHICAGO.

## GOVERNMENT CONSTRUCTION OF IRRIGATION WORKS.

For the past ten or twelve years there has been a growing demand that the government aid in the construction of irrigation works for the reclaiming of the arid lands of the West. This demand was endorsed by both the great political parties in their last platforms, and culminated in 1901 in the defeat of the river and harbor bill in the United States Senate, and has during the last session of Congress resulted in a combination of western representatives for the purpose of forcing that body to recognize the demands of the West in this regard. At the opening of the last session of Congress, the movement for the first time received the endorsement of the president of the United States in his annual message. Politically, the movement has, therefore, all the endorsement which could be asked by the most exacting partisan. But in the literature on the subject the economic and legal phases of the question have been generally avoided. It is the purpose of this paper to discuss some of these neglected phases of the general subject of government construction of irrigation works, and more particularly of the plan recommended by the president, and that formulated in the "irrigation bill" as it passed the United States Senate during the present session of Congress.

The general proposition is that the usual flow of most of the streams in the arid region is used on lands already under cultivation, but that large volumes of water run to waste during the winter and the flood period of early summer, and that this water which now runs to waste should be stored. Further, some of the large rivers, notably the Missouri, the Colorado, and the Columbia, have been little used for irrigation because of the difficulty of getting the water out of them onto the high lands which confine these streams to narrow channels. The work of storing the waste waters, and of placing the water of the streams like

those mentioned within the reach of settlers, has been declared to be beyond the power of private enterprise, and, therefore, the duty of the government. President Roosevelt states the case as follows :

Great storage works are necessary to equalize the flow of streams and to save the flood waters. Their construction has been conclusively shown to be an undertaking too vast for private effort. . . . The government should construct and maintain these reservoirs as it does other public works. . . . The reclamation of the unsettled arid lands presents a different problem. Here it is not enough to regulate the flow of streams. The object of the government is to dispose of the land to settlers who will build homes upon it. To accomplish this object water must be brought within their reach. . . . These irrigation works should be built by the national government. The lands reclaimed by them should be reserved by the government for actual settlers, and the cost of construction should, so far as possible, be repaid by the land reclaimed. The distribution of the water, the division of the streams among irrigators, should be left to the settlers themselves in conformity with state laws and without interference with those laws or with vested rights.<sup>1</sup>

The following table, showing the average monthly discharge of the Arkansas river at Cañon City, Col., brings out the necessity for equalizing the flow of streams mentioned by President Roosevelt :

AVERAGE MONTHLY DISCHARGE OF ARKANSAS RIVER AT CAÑON CITY, COL., 1898.<sup>2</sup>

	Cubic feet per second.		Cubic feet per second.
January - - - -	270 <sup>3</sup>	July - - - -	1,613
February - - - -	350 <sup>3</sup>	August - - - -	326
March - - - -	338 <sup>3</sup>	September - - - -	189
April - - - -	393 <sup>3</sup>	October - - - -	228
May - - - -	909	November - - - -	302
June - - - -	2428	December - - - -	350 <sup>3</sup>

This table shows the general character of the streams used for irrigation. The flood is sometimes earlier or later, and in some years lasts longer than in others, depending on weather conditions in the drainage area of the stream.

<sup>1</sup> *Message to Congress*, beginning of first session Fifty-seventh Congress.

<sup>2</sup> From *Twentieth Annual Report, U. S. Geological Survey*, Part IV, p. 325.

<sup>3</sup> Approximate.

The crops which can be raised by the use of a stream depend very largely on the character of its flow, and in general the value of the crop varies with the length of time which it requires to be watered. With water only during flood-time the farmer is limited to raising wild hay, which gives a return of perhaps \$5 per acre; with water in May, June, and July, he may raise grain and two crops of alfalfa, which may bring him from \$15 to \$20 per acre; with water in August, as well as the preceding months, he may raise potatoes and sugar beets, and a third crop of alfalfa, increasing his returns to \$30 to \$100 or more per acre; and with water later in the season he may plant orchards which will yield still larger returns. Assuming that one cubic foot per second will serve 100 acres, a liberal estimate, the Arkansas river in 1898 would have matured 32,600 acres of crops requiring water in August, while it would have raised 242,800 acres of native hay. If an average of say 500 cubic feet per second could be stored during June and added to the flow of the river in August an area of 50,000 acres which had been devoted to native hay, yielding \$5 per acre, could be planted to crops yielding from \$30 to \$100 per acre. The particular products named above are not raised in all parts of the West, but serve to illustrate the general principle. Again, the return from native hay will not justify any considerable outlay for bringing water to the land, and much of the flood would be allowed to go to waste if not stored, as will the winter flow of the stream. Storage will, therefore, increase the area irrigated, but its greatest advantage is in making it possible to raise high-priced products.

The construction of these storage works has been stated to be beyond the power of private effort. Although this statement appears in countless resolutions by conventions, platforms, reports, and hearings before committees of Congress, the writer has never seen one fact stated in support of the contention or one argument to prove it. It seems to be considered a self-evident proposition. It is true that a great many irrigation companies have been financial failures, but this has been equally true of companies in every other line of business, especially

during the hard times which we recently passed through. It is only fair to suppose that some of the failures of irrigation companies were due to the general depression which affected all lines of business. But the most frequently assigned cause for the failure of companies building irrigation works for the purpose of furnishing water to farmers has been the failure to get settlers under the canals to whom to deliver water. They tried to force development beyond the demand for the lands, and failed. The capital invested was, therefore, unproductive, and investors soon learned that irrigation was a good thing to let alone. Irrigation districts were organized in California for the purpose of obtaining money by issuing bonds based on the property of the districts. These failed largely because of frauds in their organization, which have ever since given a bad name to irrigation securities of all kinds, making it hard to borrow money for such works. Whether they would have failed if honestly conducted has not been demonstrated. But meantime construction has been going on. The farmers on the eastern slope of the Rocky Mountains in Colorado have built reservoirs enough to hold the floods of ordinary years, and have more under construction which will hold all except the most extraordinary floods. On the west side of the range in Colorado reservoirs are not yet needed, as the streams furnish more water than is used. In Wyoming one of the largest reservoirs in the West has been built within the past few years, and in the northern part of that state the construction of large canals has been going on continuously for several years. Construction of both reservoirs and canals has been going on in Utah, and farmers who feel the need of late water are taking steps to provide it. In the summer of 1901 the irrigators along the Jordan River in that state held meetings and appointed committees to investigate the various possible ways of increasing their water supply preliminary to taking steps to that end. During the same summer the people of the Salt River valley in Arizona had similar meetings, and spent considerable money in preliminary work, and are now trying to get through Congress a bill which will allow them to lend



the credit of some of their counties to reservoir construction. They are not asking the government to build their works, but are simply asking permission to do it themselves. During the past year several irrigation companies have been organized in New Mexico. From all this it appears that the impotency of private effort is at least open to serious question. But the real question is not *the necessity* for government construction. There can be no absolute necessity for it, because the work can be left undone, leaving conditions as they are, if the people of the West are unable to improve them. The question then comes back to *the expediency* of government construction.

The whole question of the development of the arid West would be greatly simplified if that region were wholly undeveloped, and no rights had been vested and no customs established. But when that condition existed the future importance of the region was not appreciated. The result is that whatever is now done must be done subject to existing rights, and, in a large measure, in conformity with existing laws. Under the present conditions the government may proceed along three lines: (1) The government may, like private land-owners, provide water to irrigate its own lands; (2) the government may appropriate water for "sale, rental, or distribution;" (3) there would seem to be nothing to prevent the government building reservoirs and turning the water into the streams, to be taken out below, the same as if it were a part of the natural flow of the stream; or to prevent its building canals from which water could be appropriated as if they were natural streams. In the following pages the attempt is made to show what would be the results of following any one of these courses.

#### GOVERNMENT CONSTRUCTION TO RECLAIM GOVERNMENT LANDS.

All the land in the arid region, with the exception of that in Texas, and that included in Spanish and Mexican land grants, was at one time the property of the government. This land has been disposed of in three ways: By patent to settlers under the homestead, pre-emption, desert land, and mining laws; by

grant to the several states and territories for educational and other purposes; and by grant as subsidies to railroad and wagon road companies. But large areas are still in government ownership. From natural causes most of the land which has been disposed of lies along the streams. As settlers cannot live without a water supply, the land taken up by them must be within the reach of the streams, while within the mountainous areas the only lands which can be cultivated, regardless of the water supply, are in the valleys of the streams. For equally good reasons the railroads have, as a rule, followed the streams, and their grants include the alternate sections for given distances on both sides of their tracks. Some of the grants to the states and territories have included certain sections in all townships (usually sections 16 and 36), but in many grants the state is allowed to choose the lands, and naturally chooses the more valuable tracts. In this way it happens that, while the greater part of the land in some states is still in government ownership, a large part of the cultivable land within reach of the streams is in private, corporate, or state ownership. Assuming, however, that there is government land which can be reached by water from the streams of the arid region, most of these streams are already in use for irrigating private lands. Where these private lands use the entire stream, both ordinary and flood flow, as in eastern Colorado, there is, of course, no water for the government to appropriate, and its lands must be used for grazing. Where the ordinary flow only is used for private lands, the government can obtain a supply of water by storing the floods. As pointed out above, without storage the greater part of the land watered from a stream is necessarily devoted to crops which bring a low return. Now, if the government comes in and stores the water and reclaims new lands, these private lands are forever condemned to the comparatively primitive agriculture which is possible without a late water supply. The history of the Union Colony at Greeley, Col., and of other sections, shows that the farmers will in the natural course come to a time when they will provide themselves with means for storage. But in the case

above assumed they will be shut out from this, because the water has already been stored and applied to other lands. While there is no legal obstacle in the way of such a course on the part of the government, justice would seem to demand that the owners of private lands should not be deprived of the possibility of improving their conditions. Stored water has its greatest value as a supplement to an existing supply, and used in that way will produce far greater returns than when used on lands which have no other supply. An acre-foot of water used to finish a crop of potatoes will produce a value of probably \$100 more than could be produced by the land if it was without that water, while the same quantity used on land which has no other supply will produce a value of perhaps \$5. Both justice and economy demand, then, that where the lands already under cultivation need the water of a stream the government should not take it to reclaim new lands.

There is another class of streams—those along which there is both public and private land which can be reclaimed, and in which there is unappropriated water. In such a case there would be no difference, as far as public considerations are concerned, whether the water is used on public or private lands, since the public lands will at once pass to private ownership. If the government should take all the water there would be a certain injustice to private owners, as in the other cases, since they would be permanently shut out from improving their lands.

#### GOVERNMENT CONSTRUCTION FOR SALE, RENTAL, OR DISTRIBUTION.

In all the arid states water may be taken from the streams by individuals or corporations for distribution to others than the owners of the works. There are some theoretical distinctions as to whether the charges made for this delivery are for the carrying of the water or for the water itself. In practice this makes no particular difference. It costs the farmer a certain amount to get the water to his field, and it does not reduce this charge any to call it a toll for delivery rather than a price for the water. It is fair to suppose that no state would raise any objection to

the government taking water from its streams under these general laws. The water could then be delivered to consumers, either owners of private lands or homesteaders on the public lands, for the price fixed by law, by agreement, or, in some states, by the county commissioners. This is the plan contemplated in the irrigation bill (S. B. 3057) passed by the United States senate March 1, 1902. Section 4 of that act is in part as follows :

That upon the determination by the secretary of the interior that any irrigation project is practicable, he shall give public notice of the lands irrigable under such project, and limit of area per entry, which limit shall represent the acreage which, in the opinion of the secretary, may be reasonably required for the support of a family upon the lands in question ; also of the charges which shall be made per acre upon the said entries, and upon lands in private ownership which may be irrigated by the waters of the said irrigation project, and the number of annual installments, not exceeding ten, in which such charges shall be paid and the time when such payments shall commence, the said charges to be determined with a view of returning to the reclamation fund the estimated cost of construction of the project.

Section 6 further provides :

That when the payments required by this act are made for the major portion of the lands irrigated from the waters of any of the works herein provided for, then the management and operation of such irrigation works shall pass to the owners of lands irrigated thereby, to be maintained at their expense under such form of organization and under such rules and regulations as may be acceptable to the secretary of the interior.

This plan is not open to the objection raised against government construction for government lands, that it will deprive private owners of the opportunity to improve their lands since it includes the furnishing of water to such lands. As in the former case, no opportunity for any works would arise on those streams already fully utilized. On streams where the ordinary flow is all used, but where there is flood water open to appropriation, the water made available should be supplied first to the lands already under cultivation, and if there is a surplus it can go to reclaim other lands either public or private. The latter section quoted provides for turning the works over to the users of the water when the charges made against the major portion of the lands to

be irrigated are paid. On such streams as those under consideration, government construction under this bill will simply amount to a loan to the irrigators on the stream, on ten years' time. It will no doubt help them to raise much more valuable crops, but there would seem to be no reason for thus helping one class of farmers, or the farmers in one locality, to do what others with no better opportunities have done for themselves, and what these can do for themselves without the aid of the government.

Along streams where there is unappropriated water and lands to which this water can be brought, the situation will not be materially changed from that now existing. The plan proposed is the one which has been quite generally followed by canal companies. These companies have built their works and sold water rights for prices which were supposed to repay the cost of construction, with a profit, and have charged an annual maintenance tax which pays for operating and maintaining the works. When a certain proportion of their water rights are sold the works are turned over to the purchasers to be operated by them. Some of these canal companies have owned the lands to be reclaimed and some have built works to water government lands. The water rights are sold on long time and easy terms. There are canals now in operation, with plenty of water and plenty of unreclaimed land, offered under the most liberal terms, which cannot get settlers, although agents are constantly in the field trying to secure them. The plan outlined in the bill provides that the settlers shall repay the cost of construction, and that is what they have been unable to do under the private canals, or what they think they cannot do. The argument urged in favor of such construction by the government is that it is no great hardship if the cost is not returned to the government for many years, and that the general benefit will justify the expenses; while private capital gets no return from the general good, and must therefore, sell its water rights within a limited time or fail. The canal companies have generally been financial failures, but settlement under them has gone on gradually, and successfully from the standpoint of all but the investors. This settlement

has, however, been extremely slow. There is no apparent reason why the development under government works would be more rapid. It would, however, be going on over a larger range of territory, and the whole result would be greater.

The great cry of the promoters of government construction has been the making of homes on the government lands for those of our population who have nothing with which to obtain homes but their ability and willingness to work. As stated above, a large part of the lands which can be reached has passed from the control of the government; it has also been pointed out that there are lands with a water supply provided, which can be had by these people on as easy terms as will be asked by the government under the proposed plan. As a measure for disposing of the public lands, or for providing cheap homes, the bill as passed by the senate has nothing to recommend it. As an aid to the gradual development of the West, it will doubtless succeed unless the slowness of the progress made leads to such a change of sentiment in Congress as will cause works to be left to go to ruin after being begun.

#### FREE GOVERNMENT WORKS.

The third plan under which the government may undertake irrigation works is the building of reservoirs on the headwaters of streams, and the turning of the stored water into the streams during times of low water, to be taken out under existing rights or to be appropriated under existing state laws; and the building of canals from which water may be taken as though they were natural streams.

This is the plan as to reservoirs recommended by President Roosevelt in his message:

Where their purpose (reservoirs built by the government) is to regulate the flow of streams, the water should be turned freely into the channels in the dry season to take the same course under the same laws as the natural flow.

This recommendation leads to the discussion of existing rights to water. In all the arid states rights are decreed in terms

of a "continuous flow."<sup>1</sup> That is, a canal company or an individual is decreed to have a right to take a given volume of water, say ten cubic feet per second, from a stream, continuously, or whenever it is needed. On most streams where rights have been adjudicated, the sum of all these decrees far exceeds the discharge of the stream. As an instance, the existing decreed rights to water from the Arkansas river, for which the flow is given above, amount to 4,972 cubic feet per second, while the maximum average flow for any month given is 2,428 cubic feet per second, or just about half the decreed amount. Water is distributed in this way: The person having the first right takes water up to the amount of his decree whenever it is needed; the holder of the second right does the same whenever there is more than enough water for the first right, and so on down the list. During flood period each takes all he wants, and as the supply becomes less the appropriators are cut off in order, beginning with the latest. At the time the decree referred to was made, there was more water in the stream during flood periods than was needed. Supposing the government had then built reservoirs to store this surplus, and turned the water into the stream during low water, it would have been divided in accordance with the decrees referred to, and might have been all taken by those having the earlier decrees, leaving the holders of more than half the rights no better off than they were before. Those receiving the benefit would have done nothing more than their neighbors, and would be no more deserving of this gift from the government. Where this work is done by private parties the opportunity is open to all, and the one who gets stored water pays the price; and the same would be true under government construction under the bill passed by the senate, although a question as to who should be first entitled to acquire rights might arise in the latter case if the demand exceeds the supply when the works are built. Otherwise the water will be disposed of on the principle of "first come first served," the recognized principle in the acquirement of water

<sup>1</sup> In Utah rights are often decreed to parts of a stream, or to part or all of a stream, for stated lengths of time.

rights. Canal companies have built reservoirs to store most of the flood waters of the Arkansas river, but the situation above assumed represents that existing on most of the streams of the arid region. In all the states, with the possible exception of Wyoming, the companies or individuals receiving this benefit could sell the rights to this new supply of water to their less fortunate neighbors, and in this way, while the efficiency of the stream would be increased, the great benefit would go to the holders of early rights, who need it the least and are best able to supply the water for themselves. As to making cheap homes, or reclaiming government lands, this class of works would be entirely devoid of results.

On streams, the ordinary flow of which has not been used as yet, there is naturally no call for the construction of reservoirs. It has been proposed that the government build canals from the larger rivers which have not been extensively used for irrigation, to reclaim lands where the prospective returns from the lands will not pay the cost of construction; these canals to be treated as natural streams, so far as acquiring rights to water are concerned. Under this system a stream would necessarily be treated as a whole, and a diversion from a canal would be considered a diversion from the stream. In all the arid states except Wyoming and Nebraska the course necessary to obtain a right to take water from a stream is to build a canal and put the water to a beneficial use. In practice, "beneficial use" includes sale or distribution to others, and among appropriators the first in time, is the first in right. There are provisions regarding posting and filing notices stating what is claimed, place of intended diversion, means of diversion, etc., but the only effect of posting and filing these notices is to date the right back to the time of posting rather than to the time of beginning construction, or of putting the water to a beneficial use. In Wyoming and Nebraska rights are initiated on application to state authorities and vested when the works are completed in accordance with permits issued by those authorities, but in all the states, as previously stated, rights to water for delivery to others may be acquired. There



is, therefore, no assurance under existing laws that the water thus brought within the reach of lands needing reclamation will go directly to farmers of small tracts, but the water may go to individuals or canal companies to be by them sold to farmers. In fact, this would probably be the outcome, because, even after the main canals have been built, the individual farmer cannot bear the expense of bringing the water to his land independently. Distributing canals covering several farms each are necessary, and these must be built in advance of settlement.

The carrying out of this plan, like the others discussed, would undoubtedly result in the gradual reclamation of considerable areas of land, but, like the others, would not make homes within the reach of the poor man, nor reclaim any great areas of public lands, as the present owners of lands would naturally be the first to appropriate the water, since they have only that expense, while those taking it for public lands, have also the expense of acquiring the lands.

In the preceding discussion the subject has been treated as if it were possible to tell just what the existing rights to the streams of the West are. In but two states, Wyoming and Nebraska, is this possible, and in those states only on streams entirely within either state. Attention has been called to the decreed rights to water from Arkansas river. Those decrees include only rights in Colorado, and there are canals taking water from the stream in that state which are not included, while the use of the stream in Kansas is entirely neglected by the courts making the decrees. Add to this the fact that the volume decreed is twice as much as the stream ever carries for more than a few days at a time, and it will be seen that the decrees, which are the only record of existing rights, show little as to the actual state of affairs. Again, existing rights cannot be determined by measuring the streams and the canals taking water from them, or the land irrigated. A canal may have a decreed right to ten times as much as it is carrying, or may be carrying ten times as much as it has a decreed right to, and might be able to establish its right to this larger volume as against a later claimant. A canal may be built

to reclaim fifty thousand acres of land, and be granted a right to sufficient water for that area, provided it is brought under cultivation within ten years. This is the plan followed under the "Carey Act" granting lands to states in aid of irrigation. Such a canal might be watering one thousand acres at the time of measurement, and might ultimately establish its right to only a half or a third of the volume allowed to it conditionally. Except in the states named the practice is to build canals where there is thought to be unappropriated water, and use whatever can be secured until someone complains of this use and applies to the courts for redress. The matter will then be taken up by the courts, and canal builders may find that they have rights to plenty of water, and they may find that they have no rights whatever. But there is no way in which this can be determined before the canals are built. As has been stated, Wyoming and Nebraska grant rights to streams, and here prospective builders of irrigation works may, by inquiry, find out just what water may be acquired from any stream. There are localities where it is a well-known fact that there is no water left in the streams, and others where it is equally well known that there is a surplus of water, but a great many streams lie between these extremes.

#### CONCLUSIONS.

A large part of the lands which can be reached by canals from the streams of the arid region are in private, corporate, or state ownership.

The inability of private enterprise to construct reservoirs and canals has not been demonstrated.

The construction by the government of irrigation works for public lands, exclusively, would be unjust to the owners of lands needing the water.

Where the flood waters are needed for lands already under cultivation it would be unjust and wasteful for the government to store and use the waters for new lands.

The plan proposed by the senate is the plan which has been followed by canal companies, and there is no reason to look for

greater success. It would probably result in the gradual but slow development of the West up to the extent of the water supply. In settled localities it would amount to no more nor less than a loan to farmers on ten years' time, and would reclaim no new lands.

Under existing laws there are not sufficient safeguards against monopoly and extortion to justify the building of free government works, either reservoirs or canals.

No plan but that of free government construction, for the exclusive use of government lands, which is both unjust and wasteful, will make cheap homes, or insure the reclamation of any large area of public lands.

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## THE CANADIAN BUDGETARY SYSTEM.

THE almost perfect working of the English budgetary system has attracted very wide attention. Economists and financiers admire it in its practical working, while perhaps pointing to some slight deficiencies in theory. And the question is frequently raised: would the system work to equal advantage in other countries under different political and economic conditions? Without pursuing this question in its general application, it may be said that in all its essential features the English system is carried into effect in Canada. The same directness, continuity, effectiveness, and responsibility that attend the preparation, voting, and execution of the budget in the imperial Parliament are features equally paramount in the Canadian practice. The example is afforded of a system, gradually developed through centuries of experience in the old world, being grafted into new world conditions, and working in complete harmony with these conditions, in a country which has reached only its initial stage of development.

REFERENCES: J. G. BOURINOT, *Parliamentary Procedure and Practice; British North America Act, 1867; Rules of the House of Commons (Canada); Public Accounts; Appropriation Act; Journals of the House of Commons; Auditor General's Reports; Budget Speeches; Audit Act.*

The department of finance in the federal government of Canada is presided over by the minister of finance, who is a member of the premier's cabinet. His is the only political office in the department. The deputy-minister and the staff are under the direction of the minister, and may be removed by him; but they are not removed on account of a change of government. It is the aim of the government to secure the greatest efficiency possible in the civil service, and to have it as far removed from partisan interference as is practicable.

In its preparation the budget in Canada is in the hands of the finance minister and his colleagues in the cabinet. It is

true that no money may be appropriated and no tax may be levied by parliament except on the recommendation of the governor-general, the representative of the sovereign. But paradoxical as it may seem, the governor-general has really no relation to the budget. The explanation is that any recommendation he may make is not his own, but is initiated by a responsible cabinet, the members of which are members of the house of commons or of the senate, as well as heads of departments of government. The cabinet is really a committee of the house, and its responsibility to the house, and consequently to the country, is absolute and unlimited.

That the preparation of the financial measures of the government is in the hands of the cabinet is important, not only because of this direct responsibility that is imposed, but also because it devolves upon the members of the cabinet as constituting the government to put the budget into execution. In these circumstances untried theories have no place practically in the proposed legislation. The cabinet feels its responsibility from the very initiation of the estimates to the spending of the last dollar of the appropriations, and therefore any new theories or devices are well considered in regard to their practical application to the affairs of the country before they are given a place in the fiscal proposals.

Again, the government, and particularly the minister of finance, is acquainted with the needs of the country as a whole, as well as the demands of particular sections, and hence is in a position to supervise intelligently the preparation of the estimates in regard to their territorial distribution. The cabinet consists of a body of men who are drawn from the various provinces and who have cognizance of, and who to a large extent represent, the demands of the provinces from Nova Scotia to British Columbia. As a committee, therefore, it is well qualified to give judgment on the country's requirements and to advise the governor-general in regard to financial matters.

How, then, does this advice originate? The minister of finance, who is a member of Parliament as well as of the gov-

ernment, takes the initiative by issuing in the autumn of each year a circular letter which he addresses to the other ministers. This letter requests them as heads of departments to send to the minister of finance estimates for the fiscal year beginning the first of the next July. There is no fixed time by which these estimates must be in the hands of the minister, but the practice has been invariably to have them filed during the latter part of November or the early part of December. The fact that there is no particular date set for the meeting of Parliament tends to induce dilatoriness on the part of the officers of the departments, and any Canadian minister of finance would consider himself highly favored if the bulk of these estimates were before him by the first of December. When there is the possibility that the meeting of Parliament may be delayed until late in February or even until March, it is difficult for the finance minister to impress upon delinquent departments the necessity of especial haste in the preparation of estimates.

But the main estimates are in the hands of the finance minister in sufficient time to enable him to scrutinize them carefully before he submits them to the cabinet for their consideration. It may be assumed that each department has asked for funds sufficient to provide for its actual requirements. On the other hand, it is equally safe to say that for their internal administration the departmental requests are not largely in excess of what will be needed. Indeed, it is the practice in this regard to ask for about 10 per cent. more than will be required, in order to be on the safe side. For example, in 1900-1 the finance department spent 91  $\frac{1}{3}$  per cent. of the amount appropriated for its use.

The finance minister scans the estimates with a very critical eye, looking out particularly for increases. He has obtained also from the revenue departments, the customs and other revenue branches, the amounts of estimated income for the next fiscal year, based on the supposition that taxation will remain the same. With the information which this gives him he feels the necessity of adjusting expenditure to revenue. Hence he is

frequently under the necessity of exercising his prerogative in regard to cutting down the estimates as submitted by his colleagues. He satisfies himself that all increases are for expenditures which are necessary before he allows them to pass. If the demands of a department are out of proportion to its needs, or, if on any other account revision is necessary, it is the duty and the practice of the finance minister to point out to the head of that department that such revision is desirable.

The Canadian finance minister occupies rather a unique position in regard to the preparation of the estimates and the maintenance of the equilibrium between revenue and expenditure. The functions of his office under existing conditions are not precisely those of the chancellor of the exchequer in England. Much less are they identical with those of the ways and means committee of the United States house of representatives. And yet, in a large measure, they combine the duties of both. Like the chancellor of the exchequer, it is the duty of the finance minister of Canada to devise legislation in order to raise sufficient revenue to meet the expenses of government, and, like the chairman of the ways and means committee at Washington, he must so adjust the tariff as to afford protection to home industries. The English and American fiscal policies are built on widely divergent lines, the former attempting to raise only sufficient revenue to meet expenditures without regard to the protection of manufactures; the latter aiming far beyond the point of the adjustment of taxation to the requirements of the public service. The predominant motive in the American system is the protection of the manufactures of the country, and in carrying out this policy large surpluses accrue, little attempt being made to adjust receipts to expenditures. The Canadian tariff is a low protective tariff, and in comparison with the American it may be called a revenue tariff affording incidental protection. In adjusting taxation, therefore, the finance minister executes the office of the chancellor of the exchequer when he adjusts the revenue to meet the required outlay; and likewise he performs a similar office to that of the congressional ways and means com-

mittee when he makes tariff proposals with a view to the protection of home manufactures.

When he has considered carefully the estimates, the finance minister places them before his colleagues in cabinet council. There the ministers examine them item by item, and discuss fully matters relating to revenue and expenditure. Items of political significance receive due attention, those affecting one part of the country are weighed against those affecting another part. It is necessary also to decide between important projects for the development of the resources of the Dominion. The cabinet directs its attention first to fixing the limits within which the expenditure must be contained for the next fiscal year. If expenditure is to be kept within the bounds of revenue, obviously any large projects will be entered upon only after mature deliberation and the consideration of other claims. The necessary and inevitable result is that some proposed expenditures must be eliminated, not because they are undesirable or because they are not urgent, but because of the pressing demands of necessary things. Thus the cabinet has the determining voice not only in regard to the amount of particular items of the estimates, but also in regard to the total expenditure for the year, as well as the territorial distribution of that expenditure. Furthermore, it accepts the responsibility of apportioning to each line of the public service the approximate amount that shall be devoted to that service. That is to say, if, for example, the public works department desired to increase its outlay on public buildings, the question of this proposed expenditure would come up in cabinet council, and its relative importance to other proposals would be discussed and a decision reached by the cabinet as a whole. A minister may champion an increase of expenditure in his department, but his colleagues regard his claim in view of the aggregate amount to be spent and the demands of the several other departments.

The estimates are submitted to Parliament very shortly after the opening of the house. This year (1902) the house met on Thursday, February 13, and the estimates were brought down on Monday, February 17, that is, on the second working day of



the session. There are two main divisions of the estimates, viz., permanent and annual. The permanent are those which are provided for and fixed by statute, and which it is not expedient year by year to subject to political discussion. They represent about three-eighths of the total expenditure. They include such items as the costs incidental to the collection of the revenue, the annual interests of the public debts of the several provinces at the time of confederation, the salary of the governor-general, the principal and interest on the loans raised for the purpose of constructing the Intercolonial Railway, of paying the Hudson's Bay Company, the sinking fund to provide for these loans, etc.; the yearly salaries of the judges of the supreme court and the exchequer court, and grants payable to the several provinces of the Dominion.<sup>1</sup>

The annual appropriations are for all other purposes of government. They are submitted to the house on the motion to go into committee of supply. The first matter the house deals with each session is the governor-general's speech, and immediately after it has been agreed to the finance minister makes a formal motion to the effect that on a certain day the house will resolve itself into a committee to consider the supply to be granted to His Majesty.<sup>2</sup> Before the house actually goes into supply, the finance minister brings down the estimates by message from the governor-general. He then moves "that the said message, together with the estimates accompanying the name, be referred to the committee of supply."<sup>3</sup> In this committee, which is constituted by all the members of the house of commons, the chair is taken by a permanent chairman of committees, and a member is not restricted to one speech on any question before the committee, there being perfect freedom of discussion. The estimates are arranged into votes or resolutions, and appropriate particular sums for particular purposes. They are submitted to the house on the joint responsibility of the cabinet. A vote to reject or to refuse to consider

<sup>1</sup> *Audit Act*, Art. 3.

<sup>2</sup> *House of Commons Journals*, 1874, p. 10; 1876, p. 55.

<sup>3</sup> *Ibid.*, 1876, p. 68.

the estimates would be considered equal to a vote of non-confidence in the ministry, and would lead to its resignation. Furthermore, the minister to whose department any particular item applies is under the necessity of making a full explanation in regard to the item, if such explanation is asked for by any member of the house. Hence it is in committee of supply that much financial criticism takes place. From the information placed in their hands members know the amount voted for a particular service the previous year, as well as the amount asked for the coming year. A minister frequently has a very uncomfortable half-hour of it in trying to explain to the satisfaction of a critical and inquisitive opposition some item in regard to which he is not thoroughly informed, or which has been placed in the estimates obviously for political purposes.

Thus the budget in its preliminary stages is a creation of an executive charged with unlimited responsibility. A private member may not move to increase an item in the estimates, to insert a new one, or to levy a tax. The recommendation must come from the ministers through the governor-general. The British North American Act of 1867, Art. 54, provides "that it shall not be lawful for the house of commons to adopt or pass any vote, resolution, address or bill for the appropriation of any part of the public revenue or of any tax or import to any purpose that has not been first recommended to that house by message of the governor-general in the session in which such vote, resolution, bill or address is proposed." This precludes the possibility of the introduction by a private member of a resolution or bill involving, directly or indirectly, the expenditure of public money. A private member may move to strike out an item, or to reduce it, but not to insert a new one. The initiation of all such charges is constitutionally set aside as the function of the executive government. "No principle is better understood," says Bourinot, "than the constitutional obligation which rests upon the executive government of alone initiating charges upon the public exchequer."<sup>1</sup> This recommendation of

<sup>1</sup>*Procedure and Practice*, p. 532.

the governor-general is given by a responsible minister, usually the premier or the leader of the government in the house of commons, in his place in Parliament. The following is an example of the announcement of such recommendation: "Sir Wilfrid Laurier, a member of the King's privy council, then acquainted the house that his excellency the governor-general, having been informed of the subject-matter of this motion, recommends it to the consideration of the house."<sup>1</sup>

Again, in order to place all monetary legislation in the hands of the people, it is enacted in the B. N. A. Act, Art. 53, "that bills for appropriating any part of the public revenue shall originate in the house of commons." Such bills may not be introduced in the senate. The senators are appointed for life and hence they do not feel the direct responsibility which is felt by the members of the house, who for re-election must go to their constituents and account for their parliamentary conduct. The senate may, and does discuss matters of supply, but it does not attempt to amend the supply bill. The exclusive right of the house of commons to deal with matters of supply is also recognized by the governor-general, in his speech from the throne at the opening of each session of Parliament, when he addresses the members of the house of commons alone in referring to the supplies which will be required for carrying on the government of the country.<sup>2</sup> The speech as a whole is addressed to the members of the house of commons and of the senate jointly, but a special paragraph is inserted in which the members of the house alone are addressed. In the speech for 1902, for example, the paragraph referred to is as follows: "Gentlemen of the house of commons: The public accounts for the last year and the estimates for the succeeding year will be laid before you without delay." The insertion of this paragraph is a very direct and pointed recognition by the crown of the exclusive right of the house of commons to deal with financial legislation. In all other matters the senate is invited by the speech to participate in consideration and legislation, but to

<sup>1</sup>*House of Commons Journals*, 1901, p. 317.

<sup>2</sup>*Ibid.*, 1901, p. 15.

the more representative house is delegated the responsibility of voting supplies and imposing taxation. Not only does the British North America Act specifically state that money grants must originate in the house of commons, and the crown recognize this in the speech from the throne, but the house itself has incorporated the following among its rules and orders: "All aids and supplies granted to His Majesty are the sole gift of the house of commons, as it is the undoubted right of the house to direct, limit and appoint in all such bills, the ends, purposes, considerations, conditions, limitations, and qualifications of such grants which are not alterable by the senate."<sup>1</sup>

Thus it is established beyond all question that the representatives of the people duly elected to Parliament have the sole right to spend public money and to lay taxes upon the people. But their control goes much farther. It is not only a general control of the amounts to be raised and spent, but it is a control over each individual item introduced. In 1880 the house adopted the following orders:<sup>2</sup>

1. The description of the service for which the vote is given should be as definite as practicable, so that no one vote may be applicable to the same purpose for which another vote is given.
2. The description of the subheads into which votes are divided should be as definite as is practicable, so as to avoid questions as to the particular subhead to which any particular item of expenditure should be charged.
3. The supplementary votes should be divided as near as may be into the same subheads as the main votes to which they are supplementary.
4. Where large votes are taken, it is desirable to divide them into subheads, so as to give in the estimates as much detailed information as possible.
5. Votes which are intended as grants to institutions or individuals should be distinctly so specified; and no vote should be considered as so intended, unless so specified.
6. The supply bill should contain the subheads of the votes on which it is based.
7. It is the duty of those responsible for the estimates to make the calculations on which the main vote and its subdivisions are found carefully and closely as practicable and their attention to this duty will be increased by their being expected to furnish reasons for discrepancies.

<sup>1</sup> *Rule House of Commons* 89.

<sup>2</sup> *House of Commons Journals*, 1880, p. 183.

There is still another rule of the house which safeguards the public interests. It is designed to prevent the passage of any bill for the spending of any money, before the members have had sufficient time to consider it fully:

Rule 88.—If any motion be made by the house for any public aid or charge upon the people, the consideration and debate thereof may not be presently entered upon, but shall be further adjourned until such further day as the house shall think it fit to appoint; and then it shall be referred to a committee of the whole house, before any resolution or vote of the house do pass thereon.

This rule provides a check on any hasty or ill-advised legislation that may be introduced.

The procedure in committee of supply is that each vote is taken up separately and discussed. Then it is put by the chairman and passed as any other motion. Each item in a vote may be taken up separately and discussed if the house so desires. The only limit to the discussion is that it must be relevant to the resolution under consideration. When the committee reports to the house with the speaker in the chair, the resolutions are passed in the regular way, receiving three readings before they are adopted by the house. Even at this late stage it is possible to reduce items, but not to increase them. If it is found that a grant is insufficient for the public service for which it is required, a supplementary vote must be passed. An example of this is afforded in the session of 1883. The committee of supply reported a vote of \$8,000 for the purchase of a property for the government. It was pointed out that the vote was insufficient and that the outlay would be \$11,000 instead of \$8,000. A suggestion was made to the effect that the premier should give the recommendation of the crown and increase the vote before this particular item of the report was reached. It was seen, on consideration, however, that such a proceeding at that late stage would be irregular, and that the only proper course was for the premier to bring down a supplementary vote in committee of supply for the balance of \$3,000.<sup>1</sup> Before the close of each

<sup>1</sup> *House of Commons Debates*, p. 1316; *BOURINOT, Procedure and Practice*, p. 562.

session all the votes or resolutions of supply are merged into one bill, which is passed in the regular way, and is known as the Appropriation Act. To this act the governor-general gives the royal assent.

The committee of ways and means, as well as the committee of supply, is formed at the commencement of each session.<sup>1</sup> It is the usual practice to deliver the budget speech on motion by the finance minister to go into committee of ways and means. There have been occasions when the budget has been delivered in committee, but this practice has been discarded in recent years. The procedure in ways and means is much the same as in supply. When tariff changes are made they are proposed in the form of resolutions, which receive the sanction of the committee, and are then reported to the house in due time and pass three readings there before they become law. Amendments may be introduced while the house is giving consideration to the resolutions from the ways and means committee, but no motion would be considered for the imposition of a new duty or for raising the rate on one already imposed. A member may, however, voice his disapproval of a tax by proposing another scheme of taxation for the same amount as the one before the house.

The budget speech is one of the most important features of the parliamentary year. Perhaps no other event is awaited with so much interest, not only by Parliament, but by the whole country as well. The manufacturer, the capitalist, the artisan, the merchant, the farmer—indeed all classes await very eagerly the announcement of the government's policy in regard to the tariff. This announcement is of concern particularly because the fact that the tariff is low and the country is very sensitive to the slightest change in the duties. In 1901 the average rate on all imports was 16.41.<sup>2</sup>

The budget statement is generally delivered in March, and covers three years. The actual receipts and expenditures of the last completed year are discussed, noting increases and decreases from previous records. The finance minister discusses briefly in

<sup>1</sup> *Canadian Commercial Journals*, 1874, p. 10.

<sup>2</sup> *Budget Speech*, 1901.

the speech the causes that have led to such fluctuations, and their effect on the financial standing and public debt. The amount of the surplus or deficit is clearly set forth, and is compared with other years. The expenses on current account are differentiated from expenses on capital account, and the state of the public debt is shown.

Then the speech proceeds to deal with the current year, that is with the year closing the next 30th of June. The minister knows what the revenue has been for say eight months, *i. e.*, from July 1 to March 1, and he knows the expenses of government for the same period. He is therefore in a position to estimate fairly accurately the outcome of the year's operations closing June 30; and he gives in his speech the result of his forecast, showing the probable total revenue from all sources, and over against this he sets the probable current expenditure, the expenditure on capital account, and the supplementary estimates not yet brought down, and with these figures he is able to state his estimate of the surplus or deficit as the case may be.

Furthermore, the year beginning the first of the next July is also discussed. The main estimates for this year will have been submitted to Parliament before the budget speech is delivered. The inevitable supplementary estimates will follow and will augment these estimates materially. If any special cause exists for increased expenditures not provided for, the finance minister points this out in his speech. For example, in the budget speech of 1901 Mr. Fielding noted the fact that in addition to the main estimates a considerable sum would be required in the shape of bounties on iron and steel. He had no means of forecasting the exact amount that would be required, as that would depend not on the amount of the bounty per ton, but upon the quantity that would be produced.<sup>1</sup>

In regard to revenue the minister scans the commercial and industrial horizon, and tells Parliament what he sees. He realizes the fact that as a sagacious financier his reputation is at stake, and he endeavors to read aright and to explain to Parliament

<sup>1</sup> *Budget Speech, 1901.*

the signs of the times. As an example of such a statement the following sentences from the budget speech of 1901 may be quoted: "As to the revenue," said the finance minister, "I do not expect that we can keep on at the rate of increase that has been so marked during the last three or four years. I think we have probably now reached the crest of the wave of prosperity. I do not expect that we shall have any serious reverses, but I do not think that it is reasonable to expect that we can go on increasing our business as rapidly as we have done during the past few years, etc."<sup>1</sup> Not much attempt is made in the way of definite prediction for the year in the advance of the current fiscal year, beyond general statements in regard to the outlook. Following such predictions there appears in the budget speech a discussion of Canada's trade export and import, etc., accompanied by the announcement of any tariff proposals upon which the government may have decided.

In respect of the estimates as a whole and of the budget, it may be said with fairness that they are as accurate as may be expected in a country which covers such an immense area. The whole preparation of the estimates is carefully made and just as carefully scrutinized by the minister of finance and in cabinet council. They are subjected to searching criticism and often to much argument and opposition in committee of the whole house, and when they are finally passed they represent fairly accurately the sums required for the various services. There is always a certain amount of the appropriations granted by Parliament that is unexpended, and there are certain lapses, but generally speaking the sums voted are pretty close to the requirements and the percentage of lapsed balances and unexpended appropriations is not very large. Any appropriations that may be unexpended at the end of the financial year lapse and are written off,<sup>2</sup> and must be re-voted before they may be used.

In regard to the finance minister's predictions it may be said that he usually exercises what Stourm calls sagacity and integrity—sagacity to see clearly into the future and integrity to

<sup>1</sup> *Ibid.*

<sup>2</sup> *Audit Act*, Art. 37.



declare fearlessly what he sees. The budget statement is comprehensive and yet it is clear and simple. There are not too many classifications and the statements of the minister of finance are clear and to the point. The ordinary reader is able to gather from the budget speech an intelligent idea of the country's revenue and expenditure, the condition of the public debt and the state of trade. The statement is brief and lucid and no attempt is made to conceal from the country any unfavorable conditions which may exist already or which may be foreseen. Without question the judgment of the finance minister has been at fault at times, but in these instances it has been mistaken judgment in regard to future economic conditions rather than any desire to conceal real existing conditions, that has upset the calculations. For example, when the government in 1891 took the duty off raw sugar it is quite probable, indeed it is a fact, that neither the finance minister or any other member of the government anticipated or could foresee the lean years of 1893-4. The expenditure at this time was within very reasonable bounds and it was felt that a reduction of the sugar duties could be made safely. But had the depression of two years later been anticipated, when in amount the business failures increased 52 per cent.,<sup>1</sup> it is evident that the reduction would not have been made.

In regard to timeliness, the Canadian budget fulfills all reasonable demands. The fiscal year opens June 1st and the budget speech is delivered usually in March. In 1900 it was delivered on March 23d, and in 1901 on March 14th. In 1901 the actual revenue and expenditure as given in the budget speech was brought down to March 10th, *i. e.*, to within four days of the time the speech was given in the house. Thus the position of the finance minister is one of marked advantage as there are usually less than four months to estimate for in the current year when he makes his annual budget statement while the next fiscal year begins from three to four months ahead. Perhaps the only

<sup>1</sup> Business failures, 1892, \$11,560,210; 1894, \$17,724,633.—*Budget Speech*, 1890, Diagram 11.

country that is better off in this respect is England. There the financial year begins April 1st and the accounts for the year are made up and the chancellor of the exchequer knows the actual receipts and expenditures for the year just completed when he makes his estimate for the coming year in the budget speech, usually about April 5. He has actually begun the year for which he is estimating. In the United States the estimates are made by the departments early in the autumn and are transmitted to Congress by the Secretary of the Treasury in December, seven months before the opening of the fiscal year to which they apply.

In Canada the supplementary grants, though comparatively small, play a somewhat important part in the financial legislation, and it is in regard to them that the government receives most criticism. Theoretically supplementary appropriations should have very little place in a well-ordered financial system. There is always a temptation for a government to withhold from Parliament a complete statement of its actual needs, if supplementary appropriations are to follow the main budget, in order to make a show of economy. This is particularly so in a year before an election. If Parliament had knowledge of the total requirements of the government it would be inclined to cut them down. Thus, by the judicious use of the supplementary grants the ministry is able to get more money out of Parliament than it could without them. The party in opposition usually advocates the reduction of supplementary estimates to a minimum or opposes their use altogether, but in actual practice both parties have found them necessary. One reason for this is the great extent or area of the country. The members of Parliament from British Columbia, for example, may have some pressing demand for expenditure in that province, and in all probability they do not approach the minister of finance or even the minister under whose department the appropriation is to be made, until they assemble in Ottawa for the meeting of Parliament. If the government accedes to their request and decides to ask Parliament for a grant, it must be brought down as a supplementary esti-

mate, because the main estimates will have been completed and already laid before Parliament. The great distance to be traveled by these members prevents their appearance at the seat of government, except when Parliament is in session. Similar appeals come from other quarters. Members frequently succeed in obtaining grants for their constituencies while Parliament is in session; and to these circumstances are due many of the supplementary estimates. Unforeseen events, also, occur which demand recognition. For example, in 1900 a destructive fire occurred in Ottawa and Hull, and many thousands of people were left homeless. The government brought down a supplementary estimate for \$100,000 for the relief of the sufferers.<sup>1</sup> On the whole the supplementary grants are kept within reasonable bounds. They run three, four or five millions per year, and eight or ten millions would be considered a very heavy supplementary charge.

In dealing with public money, the finance minister acts also in the capacity of receiver-general. And it is provided that "all public moneys from whatever source of revenue derived, shall be paid to the credit of the account of the minister of finance and receiver-general through such offices, banks or persons, and in such manner as the said minister from time to time directs and appoints."<sup>2</sup> The audit act also provides that the treasury board, a supplementary committee of council of which the finance minister is chairman, may appoint the times and mode in which persons charged with the collection of money shall make payment to the government, with the provision that payments must be made at least once every month.<sup>3</sup> The treasury board has adopted a regulation to the effect that all collectors are required, when possible, to make a daily deposit of their receipts to the credit of the receiver-general unless such receipts are under the sum of twenty-five dollars.<sup>4</sup>

The public money is kept in consolidated account in the Bank of Montreal, and the routine by which collected funds reach

<sup>1</sup> *Sessional Paper*, 1900, 2b.

<sup>2</sup> *Audit Act*, Art. 25.

<sup>3</sup> *Ibid.*, Art. 26.

<sup>4</sup> *Treasury Minute, Auditor-General's Report*, 1900, B. 23.

that account is interesting. The instance of cash collected by a collector of customs will afford a good illustration. He is given directions to pay his gross receipts into a bank which is authorized to receive government money. The bank issues to him a receipt in original, duplicate and triplicate and a draft on its branch at Ottawa. The officer retains the original receipt thus issued by the bank as his own receipt, and forwards to the customs department at Ottawa the duplicate, triplicate, and draft, together with a statement of the collections which he has deposited. The customs department keeps the duplicate and transmits the triplicate and the draft to the finance department, which holds the triplicate as a voucher. The amount of the deposit is credited to the customs department, and the draft is deposited into consolidated account. In cases where money is received at a place where there is no bank into which it can be paid conveniently, it is remitted in such manner as the receiver-general may direct, and accounts of such money are rendered to the auditor-general in such form as the treasury board may prescribe.<sup>1</sup>

In regard to paying out public money, it is the invariable rule that no warrant shall be issued for any sum whatever that has not been voted by the house of commons, or by an act of Parliament. When there is such a resolution or statute, the governor-general from time to time under his signature, countersigned by a member of the treasury board, may authorize the minister of finance and receiver-general to issue from the moneys thus appropriated the sums required to defray such expenses, not exceeding the amount of the sums granted for the particular service.<sup>2</sup>

In general there are two ways in which moneys are paid out. In the first place any department may apply to the minister of finance for a letter-of-credit for a lump sum out of the funds that have been granted to that department by Parliament. The credit is issued on the Bank of Montreal or on other banks charged with the expenditure of public money, and the depart-

<sup>1</sup>*Audit Act*, Art. 28.

<sup>2</sup>*Ibid.*, Art. 29.

ment issues its own cheques for the running expenses, the cheques being signed by the deputy minister and the accountant of the department. Statements in duplicate of all moneys paid out under these credits must be rendered. One statement together with the cheques that have been issued goes to the auditor-general, and the other to the minister of finance. Thus the auditor-general not only has the departmental statement of the money paid out, but he also has the endorsed cheques which prove that the money has been received by the person to whom it was due. Being satisfied with the correctness of the statement, therefore, the auditor-general requests the minister of finance to cause cheques to be prepared to reimburse the banks for the advance thus made. These cheques are signed by the auditor-general, or by their respective deputies.<sup>1</sup> A department may not overdraw its line of credit at a bank. By an order in council of July 7, 1892, it is the "duty of the accountant of each department to inform the deputy minister of the department whenever a cheque which is about to be issued will overdraw an appropriation or letter-of-credit, so that such a cheque may not issue until parliamentary or other authority as provided by the audit act, is obtained in the one case, or an additional credit in the other case."<sup>2</sup> In the second instance a cheque may be issued by the department of finance, and in this case an audit is made before the cheque is issued.

The Canadian audit is parliamentary. The auditor is appointed by the governor-general under the great seal of Canada for the complete examination of the public accounts.<sup>3</sup> His salary is fixed by statute, and he is paid out of the consolidated fund. His tenure of office continues during good behavior, and he is removable by the governor-general on address of the senate and house of commons.<sup>4</sup> The internal working of his office and the rates for the audit of the public accounts is left largely in his own hands—subject to the approval of the treasury board. Daily accounts of all govern-

<sup>1</sup>*Audit Act*, Art. 30.

<sup>3</sup>*Audit Act*, Art. 21.

<sup>2</sup>*Auditor-General's Report*, 1900, p. B. 4.

<sup>4</sup>*Ibid.*, Art. 22.

ment receipts and deposits must be rendered to him.<sup>1</sup> In regard to the issue of checks it is the duty of the auditor to see that there is a direct parliamentary appropriation before any cheque is issued,<sup>2</sup> and no cheque may be issued except on his certificate that there is parliamentary authority for the expenditure.<sup>3</sup> To this there are three exceptions: (1) If on appeal from the ruling of the auditor-general that there is no parliamentary appropriation for the issue of a certain cheque, the attorney-general of Canada expresses the opinion in writing that there is such authority, the treasury board may authorize the deputy-minister of finance and receiver-general to prepare a cheque irrespective of the auditor-general's report. (2) If an accident happens to a public work or building when Parliament is not in session, or an immediate outlay is required for repairs, or if any other occasion arises where an unforeseen expenditure is urgently and immediately required, the governor-general in council may issue a special warrant for the amount estimated to be required. This amount must be placed in a special account and cheques may be issued against it in the regular way. (3) In the case of the auditor-general's refusal to certify that the finance minister's cheque may be issued, on the ground that the amount is not justly due or on any other ground than that there is no parliamentary authority, the treasury board shall be appealed to and decide the question in dispute.<sup>4</sup>

In general, before he may authorize any payment to be made the auditor-general must satisfy himself, (1) that there is a definite parliamentary appropriation; (2) that such appropriation is not exceeded; (3) that the officer under whose special charge the public work is done has certified that such work has been done, or materials have been supplied, as the case may be; (4) that the officer has certified also that the price charged is according to contract, or if not covered by contract, that it is fair and just.

In regard to the annual report of the accounts, it is the duty of the finance minister to transmit to the auditor-general by the 30th of September every year, an account showing the issues

<sup>1</sup>*Ibid.*, Art. 28.

<sup>2</sup>*Ibid.*, Art. 31.

<sup>3</sup>*Ibid.*, Art. 32.

<sup>4</sup>*Audit Act*, Art. 32.

made from the consolidated revenue account in the financial year ended on the 30th of June preceding for services directly under his control; and such accounts and the report of the auditor-general thereon must be laid before the house of commons by the minister of finance by January 31, or if the house is not sitting then, within one week of the opening of the session of Parliament.<sup>1</sup> If the minister fails to report to the house of commons within the time prescribed, it is the duty of the auditor-general to present the report forthwith.\*

Thus in the preparation, execution and control of the Canadian budget there is a complete effective system, a system which will stand comparison with that of any other country in the world. The control of the people over the country's financial legislation is satisfactory. The checks imposed are sufficient to prevent the enactment of money bills by any man or by any set of men short of a good working majority in the house of commons. Perhaps in no other country, not even excepting England, do the details of estimates receive such close scrutiny. The audit is independent of any minister, of any department, or even of the whole cabinet. The auditor-general maintains his position firmly, and to say that his audit is effective is but to describe the normal condition of affairs.

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<sup>1</sup>*Audit Act*, Art. 35.

\**Ibid.*, 49.

## NOTES.

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### A. MARSHALL ON ECONOMICS FOR BUSINESS MEN.

THE creation of scholarships for Americans at Oxford by Cecil Rhodes suggested to many that, so far as economics was concerned, English universities offered little or no inducement for American students. Must there not be an awakening of Oxford to the demands of modern learning if these scholarships were to be properly filled? At the same time, the comparisons daily drawn between the relative industrial growths of Germany, Great Britain, and the United States, also drew attention to the comparatively little attention given to economic studies in English institutions of learning. If England is to hold her own in industry she must not fall behind in economic education. In fact, the same problems have been forcing themselves on English universities which have been agitating our own, although we have, in American fashion, made more rapid progress in carrying out our plans than have the English.

Professor Alfred Marshall, the first of English economists, has very recently expressed himself on the relation of economic training to England's<sup>1</sup> industrial future; and his opinions upon the proper aims of an education suited to men of affairs, and the subjects to be studied, have a very pertinent bearing upon the experiments now being tried in American universities. In his opinion, "Every university must consider from time to time whether its scheme of study and teaching is adequate to present needs."

Today a student in economics at Cambridge, by the best route, should give himself in the first two years to Part I of the Historical Tripos, and then follow that with Part II of the Moral Science Tripos. But much of the first part is naturally given to mediæval history; the examination by two different boards could not be satisfactory; and the necessary appearance of one economist among the examiners is inadequate in view of the accepted fact that "economics is too large a subject for any one person to examine well in the whole of it." Moreover,

<sup>1</sup> *A Plea for the Creation of a Curriculum in Economics and Associated Branches of Political Science, addressed to the Senate of Cambridge University.* April 7, 1902.



Professor Marshall holds, "no sound and realistic study of economics can be compressed into a three years' course with mental science." Certainly the opportunities for thorough training in both the theory and practical workings of economics are very much greater today in this country than in England, even with the recent creations at London, Birmingham, Owens College, and elsewhere.

As to the relation of economic studies to national welfare, Professor Marshall says :

In the United States, in Germany, and elsewhere, great numbers of business men and Government officials have studied economics at the universities, and have thus learnt to consider particulars in relation to general principles. They are quick to see how the results of their experience may be serviceable to the public, and to make clear to others what they have learnt from life. But such men are rare in England.

And yet in England, as elsewhere, economic and social considerations are acquiring an ever-increasing influence over thought and action. The Legislature, the Executive, and even the Diplomatic Corps of all countries of the modern world are often occupied with economic issues half their time. None of these issues are quite like those of old days. Many of them are entirely new. And, in spite of the great advance of historical knowledge, the present age has to solve its own economic problems for itself, with less aid from the experience of the past than has been available for any other age. The causes which have made practical economic problems occupy so large a part of the attention of thoughtful men of all classes are mainly the same as those which have moved these problems away from the experience of earlier times. Among the most prominent of them is the rapid extension of international relations.

The increase of wealth and the quickening and cheapening of means of communication has made every country more sensitive to the economic movements of its neighbours ; and the term "neighbours" is ever obtaining a wider significance, partly as a result of expansion of empires across the ocean until their frontiers march together in all quarters of the globe. Peace and war have long been governed mainly by the prevailing opinions, true or false, as to national interests and international rivalries in distant fields of commerce, actual and potential. But it is only recently that dependence on distant sources of supply for food and raw produce has made England's continued existence depend on her keeping pace with the forward economic movement of nations against whom she may need to measure her force. In fact England is not, and probably never again will be, completely mistress in her own house. She is not free to weigh the true benefits of a higher culture or a more leisurely life against the material gains of increased economic

vigour, without reference to the rate at which the sinews of war are growing elsewhere.

In the seventeenth century Dutch writers boasted that ten of their countrymen in a Dutch vessel would work as much trade as twenty of any other nation. In the first half of the nineteenth century we could boast that ten of our countrymen could do as much in almost any branch of industry as twenty foreigners, because they were better fed and equipped with better appliances. But as the century wore on, the shackles of political despotism were loosened on the Continent; and when 1871 had seen the close of the wars in Western Europe, there grew up a generation of workers who turned their increasing command over nature to account in providing the two sources of energy—better food and better education. A great part of our working population was already fairly well fed; and we turned our growing wealth to less good account. Our education has improved very slowly; and our physical energy, though perhaps on the whole as great as ever, is certainly less relatively to that of other northern nations than it was even half a century ago, while there has perhaps been some decline in our willingness to exert ourselves. We are no longer at the high premium at which we were for those operations in iron works, etc., which require exceptional powers of endurance; and in manual skill we have been nearly overtaken by several nations who were far behind us. Our great store of wealth has given us an advantage; and it is increasing as fast as ever. But, after deducting land, it is even now less than ten years' income; and we should quickly be passed by rivals still some way behind us, if their productive energy were a little greater than our own, and their mode of living a little more sparing. Thirty years ago it was expected that the beginning of this century would see the white population of the British Empire greater than that of the German; but this hope has been disappointed. If similar changes continue for long, and go much further, our surplus of revenue over expenditure, available for naval and military use, will be less than that of Germany.

But, urgent as is this study of the causes of "the wealth of nations" in connection with political stability, it is even more urgent in connection with the quality of life. The present age is indeed a very critical one, full of hope but also of anxiety. Economic and social forces capable of being turned to good account were never so strong as now; but they have seldom been so uncertain in their operation. Especially is this true of the rapid growth of the power and inclination of the working classes to use political and semi-political machinery for the regulation of industry. That may be a great good if well guided. But it may work grave injury to them, as well as to the rest of the nation, if guided by unscrupulous and ambitious men, or even by unselfish enthusiasts with narrow range of vision. Such persons have the field too much to themselves. There is need for a larger number of sym-

pathetic students who have studied working class problems in a scientific spirit; and who, in later years, when their knowledge of life is deeper, and their sense of proportion is more disciplined, will be qualified to go to the root of the urgent social issues of their day, and to lay bare the ultimate as well as the immediate results of plausible proposals for social reform.

For instance, partly under English influence, some Australasian colonies are making bold ventures which hold out specious promise of greater immediate comfort and ease to the workers. But very little study of these schemes has been made of the same kind, or even by the same order of mind as is applied to judging a new design for a battleship with reference to her stability in bad weather; and yet the risks taken are much graver. Australasia has indeed a large reserve of borrowing power in her vast landed property; and, should the proposed short cuts issue in some industrial decadence, the fall may be slight and temporary. But it is already being urged that England should move on similar lines, and a fall for her would be more serious.

We need, then, to watch more carefully the reciprocal influences which character and earnings, methods of employment, and habits of expenditure exert on one another. We need to see how the efficiency of a nation is affected by and affects the confidences and affections which hold together the members of each economic group — the family, employers and employees in the same business, citizens of the same country. We need to analyse the good and evil that are mingled in the individual unselfishness and the class selfishness of professional etiquette and of trade union customs. We need to study how growing wealth and opportunities may best be turned to account for the true wellbeing of the present and coming generations.

A most interesting part of his presentation relates to the needs of those who are on the way to an active career in business, or in public administration, as follows:

Among the many changes in the methods of business of the present age, two stand out clearly; a tendency towards increased specialization in the work of subordinates; and a tendency towards greater breadth and diminished specialization in the work of heads of business, of directors of companies, and of the higher public officials. Other institutions can give a technical training, suitable for the lower ranks of business more easily than we can, and with less harm to themselves. But we are well placed for giving a broad education which will bear directly on the larger management of affairs, and for adding to it that training of personal character which is offered by life at Oxford and Cambridge.

Business men generally recognize the importance of this human training. But they complain that the studies of Oxford and Cambridge almost ignore those questions in which their sons will be most interested in after years; and that they are tempted to lead too easy a life here from the lack of an oppor-

tunity of distinguishing themselves by work that is congenial to them. In so far as this is the case, even those who believe that the older studies give the best possible education to students during their university career will probably admit that we are in fault. I myself think that the higher study of economics gives as good a mental training, its breadth and depth being taken together, as any other study; and that, in addition, it develops the human sympathies in an exceptional degree. But even should this not be conceded, economics may yet claim a first place among university studies if account be taken of the mental activities in after-life which may result from a thorough study of it here.

The shafts and galleries of a mine are a scientific museum and laboratory to a colliery manager who has made a thorough study of geology: his mind grows with his work, and he may increase the world's wealth of knowledge. But if the same man had neglected geology, and pursued here other studies, his B.A. degree would not improbably have been the end, instead of the starting point, of the chief intellectual work and interests of his life. As geology is related to mining, so is economics to general business. A Grote, or a Lubbock may harvest rich fields of thought remote from their business; and a Siemens may work in the field of physics with both hands. But yet there remain many business men whose experiences in later life are likely to be turned to much higher account for themselves and for the world by an early study of economics than by any other training.

The business man who is not only a merchant but also an employer of labour, needs to know the real life of the people. His primary relations with his workmen lie in the exchange of pay for labour. But he is likely to fall short even as profit-winner, and he certainly cannot be a good citizen, unless he has thought and cared much about those sides of his work-people's life and character which are, at most, indirectly reflected in the wages bargain. To learn this from personal contact is ever more difficult for the large employer: he is separated from the mass of the workers by too many strata of subordinates. But broad economic studies will have prepared him to look at the problems of employment from the point of view of the employee as carefully as from that of the employer. Experience shows that this training helps him to see the drift of the complaints urged by his men, and to make concessions quickly and cordially to such as are reasonable. And especially will this be the case if he has combined with his studies that social training which is afforded by the life of a residentiary university of the Anglo-Saxon type.

For such a life draws out the faculties that are needed in the social relations of those who have to deal with large bodies of men and large public interests. On the river and in the football field the student learns to bear and to forbear, to obey and to command. Constant discussion sharpens his wits; it makes him ready and resourceful; it helps him to enter into the

points of view of others, and to explain his own ; and it trains his sense of proportion as regards things and movements and persons, and especially as regards himself.

Again, directors of joint-stock companies, and members of executive committees of County and City Councils, are called on to decide questions of broad policy in relation to business affairs of which they have not had much specific experience, even if they happen to be established in business on their own account. While leaving even the larger details to salaried officials, it will be their part to bring to bear broad, strong, well-balanced judgments, insight into character, tact in managing men, and fine intuition as to when to take risks and when not.

And nearly the same thing may be said with regard to those who as public officials, as ministers of religion, as the owners of land or cottage property, or in any other private capacity, will be largely concerned with "the condition of the people question," with public and private charity, with co-operation and other methods of self-help, with harmonies and discords between different industrial classes, and with the problems of conciliation and arbitration in industrial conflicts which are ever assuming larger proportions. Those who are nearest to these conflicts can seldom be perfectly impartial arbitrators ; and there is here a special call for men who have received a sound training in economics and in political science, and can bring to bear that elasticity of mind and that quickness of sympathy with aspirations and ideals that are not their own, which it is the privilege of a residential university to foster.

The petition that provision may be made for a thorough study here of economics and associated branches of political science, is then based mainly on three considerations. One is, that economic issues are growing in urgency and in intricacy, and that economic causes exert an increasing control on the quality of human life. Another is, that such studies offer abundant scope for the training and the exercise of those mental faculties and energies which it is the special province of a university to develop. The third is, that those who are looking forward to a business career or to public life are likely to be preferentially attracted to a residential university which offers a good intellectual training and opportunities for distinction in subjects that will bear on their thoughts and actions in after-life.

It is not suggested that a technical preparation for business should be given here ; nor that those looking forward to public life should leave Cambridge provided with ready-made opinions on controverted issues of the day. It is suggested merely that economists should be able to obtain here a three years' scientific training of the same character and on the same general lines as that given to physicists, to physiologists, or engineers.

On the pedagogical question of how to accomplish the given end by a curriculum, he adds :

The economist requires a broad knowledge of the history of his own country and of others which are in close contact with it, especially in recent times; of the structure and functions of the modern state; and of the legal form of those rights and obligations the basis of which lies chiefly in economic conditions.

They need to give their main attention to that marvellous simultaneity of political, social, and economic developments in the modern world, which results from telegraphic and other means of communication; and by which the twentieth century seems likely to be dominated. . . . The economist needs so large an acquaintance with existing conditions and their nearer antecedents that he cannot spare any of his short three years for a detailed study of remote history. He must train his sense of historical evolution, as best he may, in a careful study of recent events aided by some general knowledge of the broader movements of earlier times.

Although economics is based on observation, yet it has an advantage over most physical sciences. For the student starts with a considerable knowledge of the facts on which economics rests. He is acquainted with the main springs of action in the ordinary affairs of life; he can follow illustrations drawn from the more prominent industries and trades and so on; and he should turn this advantage to full account. He should at once set on a course of reasoning and analysis, obtaining from familiar facts the matter on which his mind can work. He should begin to disentangle the interwoven effects of complex causes. He should learn how things which seem alike and are called by the same name, are often really dissimilar; and how those which seem dissimilar and are called by different names, are often fundamentally alike. He should seek for the Many in the One, and the One in the Many—a task in which skill is to be acquired only by long practice, unless, indeed the student has rare natural genius, or has mastered some branch of physical science. This task should afford the main exercise to his mind from the very first; and should be supplemented by the less fatiguing work of increasing his knowledge of appropriate facts of all kinds.

Of course only those facts should be studied which are strictly necessary to give reality and a sense of proportion to the student's thought. But the scientific treatment of many economic problems requires a much more thorough knowledge of recent and existing conditions than has hitherto been generally possessed by our ablest students.

One chief weakness of the present study of economics in Cambridge is that it is perforce insular: time does not suffice to make it international.

It is becoming the fashion to allot a large place to geography in modern economic teaching. That may be carried too far. But much may be gained by a broad, general study of the economic influences which mountains and watersheds, roads, railroads, rivers, and seas exert on life and work; and of

the geographical distribution of the resources and methods of agriculture, mining, manufactures, and transport. This would prepare the way for an analysis of the interactions of the material and the human elements in the prosperity of cities, of industrial districts, and of nations.

Passing thus from the material conditions of work to the human, the student should, with a similar use of the international comparative method, make a broad and non-technical study of the recent development and the present position of (a) The structure of manufacturing and other industries; the causes and results of the development of machinery, and of man's general command over nature; the expansion of joint-stock companies, the growth and working of trading combinations and monopolies, and of railways, &c.: (b) Organized markets for goods and for credit; monetary and banking systems; stock exchanges; commercial fluctuations; (c) Methods of employment, relations between employers and employees, trade unions, &c.; methods of tenure of land and other real property, and their social results: (d) Earnings, nominal and real, of various industrial classes; and the use made of these earnings; housing, the standard of life, &c.: (e) The course of international trade, and the mutual interaction of foreign commerce and national industrial character: (f) Systems of taxation, central and local: (g) Regulative influences exerted by public authority and public opinion over the economic conditions of life and work; and over the supply of water, electricity, the means of transport, and other uses of large public rights: (h) Constructive intervention of authority in economic matters; Government undertakings.

Lastly, so far as material is accessible, a study should be made of the socio-economic ideals of different nations.

This larger inductive study would be combined with deeper analysis and more thorough construction. The simpler interactions of commingled causes being now taken for granted, attention would be given to the more complex: and thus the study would become truly realistic.

For nature does not have separate compartments for wages and for profits; for the influence of railway and of banking systems; for the effects of monopolistic combinations, of trade unions, and of international trade competition; for credit fluctuations, and for unemployment and poor relief. The effects of every cause spread in every direction; commingle with other effects, modify them and are modified by them; and become in their turn new causes, reacting on and modifying the conditions by which they were themselves produced.

The more advanced work of the student would thus be given chiefly to the difficulties arising from the breadth of his problems. But part would need to be given to narrower difficulties. Such are for instance some intricate problems relating to currency, to monopoly prices, to railway charges, and the incidence of taxation. Again, some study should be given to valuation

and allowance for depreciation, with special reference to goodwill and other things, the values of which are not directly indicated by market competition: for, in consequence of the modern tendency towards the investment of public and semi-public funds in slippery properties of this kind the very difficult questions connected with them are growing in interest and importance.

Elements of statistical method should be studied early; but mathematical work in statistics should be united with mathematical versions of pure economic theory as an optional subject at the end of the course.

The history of economic doctrine should be another optional subject.

And lastly, though the question is not free from difficulties, some of which lie outside of my province, and though more than three years are already bespoken, I think that perhaps room should be found for the optional study of the principles of those branches of law, the policy of which is mainly governed by economic considerations. Such are laws relating to contract generally, landlord and tenant, joint-stock companies, bankruptcy, patents, monopolies, combinations in restraint of trade, factory and labour legislation generally.

It is indeed a chief part of the work of the economist to consider the regulative functions of Government as regards such matters. In consequence, the studies of economics and law are associated in the same faculty in the universities of many countries: and where that is not done, as in north Germany, it is customary for students of law to attend some lectures on economics, and *vice versa*. In fact this appears to be the only western country in which the two studies have been entirely dissociated.

I speak with a view to those students whose interests are mainly economic. I hope that this scheme may be extended by the addition of a few papers on political science, including international law, for the benefit of students who are looking forward to a political career (including diplomacy in its economic relations), who wish to give about half their time to economics, and the other half to recent general history and political science.

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#### THE RECLASSIFICATION OF THE PAPER CURRENCY.

THE purpose of the act of March 14, 1900, was, in addition to reaffirming the gold standard, to systematize the currency of the United States and provide a distinctive field for the circulation of silver certificates. Two years have passed, and it is interesting to inquire how far the process has gone on and to what extent the purposes of the act have been carried out.

Prior to the act the various forms of currency were issued in denominations of one dollar and upwards. Under the act, February



28, 1878, any holder of silver coin might deposit with the treasurer in sums not less than \$10 and receive therefore certificates of not less than \$10 each, corresponding with the denominations of United States notes.<sup>1</sup> The result was that \$5, \$10, \$20, \$50, \$100, \$500, and \$1,000 certificates were circulated by that act, and in 1886 Congress authorized the issue of silver certificates in \$1, \$2, and \$5 denominations which were to be substituted for the higher ones.<sup>2</sup> Up to 1890 the secretary of the treasury was given full power to determine the denominations of United States notes, the law reading: "United States notes shall be of such denominations not less than \$1 as the secretary of the treasury may prescribe." Congress in 1890 attempted to check the substitution of large denominations for the notes below \$5, but the new act aims to secure this very thing. The recent law also requires the retirement of the treasury notes as rapidly as possible in that such notes when redeemed in silver coin must be canceled.

The denominations of currency under the new act are: silver certificates \$10 and under, except that 10 per cent. may be issued in denominations of \$20, \$50, and \$100; United States notes in denominations of \$5 and upwards and the retirement of smaller denominations less than \$5 and reissue in larger denominations; national bank notes shall not be less than \$5 except in so far as one-third of such notes may be in denominations of less than \$5. The act provides then a larger field for silver circulation, and the treasury note is to be removed by redemption, and by coinage of the bullion into subsidiary silver.

Through the medium of redemption, reissue, retirement, and coinage, the government expects to systematize the currency by the new law. It remains to be seen how far the provisions of this legislation has been carried out. To do this it will be necessary to examine the situation at the time of the act and at intervals since its passage. The bank note may be left out of the calculation, in that the new law does not affect the denominations of that form of currency. One-third of the national bank notes may be in denominations less than \$5, the limit being, therefore, in the neighborhood of \$100,000,000; but at present the circulation of such notes in denominations less than \$5 is not \$1,000,000. On March 31, 1900, the denominations of paper currency outstanding were as indicated in the table below:

<sup>1</sup>Section 3.

<sup>2</sup>Act, August 4, 1886.

Denominations.	United States Notes.	Treasury Notes, 1890.	Silver Certificates.	Silver Dollars.
One dollar .....	\$ 2,165,171	\$ 7,050,989	\$ 49,691,129	.....
Two dollars .....	1,976,675	6,211,506	29,018,983	.....
Five dollars .....	83,784,287	30,342,315	105,986,357	.....
Ten dollars .....	96,668,731	29,681,100	126,813,681	.....
Twenty dollars .....	75,587,802	9,179,690	71,395,070	.....
Fifty dollars .....	12,875,550	126,000	19,933,310	.....
One hundred dollars .....	22,712,800	1,308,400	4,058,970	.....
Five hundred dollars .....	10,770,000	.....	146,500	.....
One thousand dollars .....	41,115,000	1,475,000	2,679,000	.....
Five thousand dollars .....	15,000	.....	.....	.....
Ten thousand dollars .....	10,000	.....	.....	.....
Total .....	\$347,681,016	\$85,375,000	\$409,723,000	\$69,139,994
Destroyed .....	1,000,000	.....	.....	.....
Net .....	\$346,681,016	\$85,375,000	\$409,723,000	\$69,139,944

The total circulation at the time was \$2,021,274,506.

The changes proposed would necessitate (1) the issue of \$20,000,000 subsidiary silver and the retirement of \$13,000,000 of treasury notes; (2) the retirement of treasury notes (\$72,375,000) and issue of nearly \$100,000,000 additional silver certificates; (3) the issue of silver certificates in \$1, \$2, and \$5 denominations for \$2,825,500 in \$500 and \$1,000 denominations; (4) the issue of about \$60,000,000 silver certificates for \$20, \$50, \$100 denominations of same currency; (5) the retirement of about \$98,000,000 in United States notes in \$1, \$2, and \$5 denominations, and the reissue of the same amount in larger denominations. The readjustment when finally completed would be somewhat as presented in the table below:

#### READJUSTMENT OF CURRENCY.<sup>1</sup>

Denominations.	United States Notes.	Silver Certificates.
One dollar .....	.....	\$ 80,000,000
Two dollars .....	.....	40,000,000
Five dollars .....	.....	200,000,000
Ten dollars .....	\$106,000,000	150,000,000
\$20, \$50, and \$100 .....	180,000,000	40,000,000
\$500 and over .....	60,000,000	.....
Total .....	\$346,000,000	\$510,000,000

<sup>1</sup>*Sound Currency*, Vol. VII, p. 50.

On August 31, 1901, six months after the passage of the act, there were \$2,112,505 in \$1, \$1,855,952 in \$2, and \$72,352,952 in \$5 denominations of United States notes, a reduction of about \$10,000,000 in the \$5 denominations, followed by slight increases in the larger denominations. The \$1 silver certificates had increased from \$49,691,129 to \$54,195,939, and the \$2 silver certificates from \$29,018,983 to \$32,318,333.

The largest increase was found, however, in the \$5 silver certificates, the amount having risen from \$105,986,357 to \$124,412,072. The movement is evidently very largely due to the coinage of the bullion represented by the treasury notes, for during the six months the treasury notes had been reduced from \$85,375,000 to \$70,388,000, while the silver certificates of \$1, \$2, and \$5 denominations had increased from \$184,696,469 to \$210,926,344, leaving the sum of the increase at \$26,229,875, \$15,000,000 of which are accounted for by the retirement of the treasury notes. The remaining \$11,000,000 are made up as follows: \$20 denominations, \$10,474,320; \$50 denominations, \$5,617,175, and \$100 denominations, \$530,150, a total of \$16,621,645; but the \$10 denominations had made a gain of \$6,643,770. Adding, however, the decline in the \$1,000 denominations to the former amounts (some \$1,720,000), the net gain of small denomination silver certificates was \$11,697,875.

It still is to be seen, nevertheless, whether the change in amount of denominations is not due to the course of trade rather than treasury action. By October 31, 1901, a very great change had taken place in the denominations of the currency.<sup>1</sup> The treasury notes had been decreased to \$41,434,000, and the silver certificates had increased to \$449,648,000. The situation is well represented by the following table.

As compared with the statement of March 31, 1900, practically no change had taken place in the \$1 and \$2 denominations of the United States notes, but there had been a falling off in the \$5 denomination of about \$40,000,000, and an increase of \$60,000,000 in the \$10 denomination, the difference of \$20,000,000 being made up by the decrease in the \$20, \$50, \$100, \$500, and \$1,000 denominations. The treasury note denominations had decreased in every case to less than half in the total to what they were a year and a half before. In the case of the silver certificates, a great change is noticed. The \$1 denomination has increased to \$64,467,041, the \$2 denomination to

<sup>1</sup> *Monthly Summary of Commerce and Finance*, October, 1901.

## DENOMINATIONS OF CURRENCY, OCTOBER 31, 1901.

Denominations.	United States Notes.	Treas. Notes.	Silver Certificates.
One Dollar.....	2,019,488	1,723,032	64,467,041
Two Dollars.....	1,626,358	1,559,533	39,076,886
Five Dollars.....	43,714,222	13,849,625	197,153,387
Ten Dollars.....	157,367,471	16,872,710	96,646,861
Twenty Dollars.....	65,408,452	5,713,550	41,582,570
Fifty Dollars.....	11,502,475	81,250	7,802,535
One Hundred Dollars	2,030,050	863,300	2,581,220
Five Hundred Dollars	11,142,500	.....	79,500
One Thousand Dollars	33,850,000	771,000	258,000
Five Thousand Dollars	10,000	.....	.....
Ten Thousand Dollars	10,000	.....	.....
	347,681,000 <sup>1</sup>	41,434,000	449,648,000

\$39,076,886, and the \$5 denominations to \$197,153,387, while the \$10 and \$20 denominations had decreased about \$60,000,000. The progress made in carrying out the provisions of the act may be noted by the comparison below.

## READJUSTMENT OF CURRENCY.

FINAL ADJUSTMENT.			CONDITION OCT. 31, 1902.		
Denominations.	U. S. Notes.	Silver Certificates.	U. S. Notes.	Treas. Notes.	Silver Certificates.
One Dollar....	\$.....	\$ 80,000,000	\$ 2,019,488	\$ 1,723,032	\$ 64,464,041
Two Dollars...	.....	40,000,000	1,626,358	1,559,533	39,076,886
Five Dollars...	.....	200,000,000	43,714,222	13,849,625	197,153,387
Ten Dollars...	106,000,000	150,000,000	157,367,471	16,892,710	96,648,861
\$20, \$50, \$100.	180,000,000	40,000,000	97,990,977	944,550	51,965,325
\$500 and over.	60,000,000	.....	14,547,500	771,000	337,500
Totals.....	\$346,000,000	\$510,000,000	\$347,681,000	\$ 41,434,000	\$449,648,000

Much remains to be done on the final adjustment. It will take at least two more years to retire the treasury notes. From the figures given above the silver certificate has nearly reached its maximum in three fields of estimated circulation, the \$2, \$5, and \$500 denominations. The movement from \$20, \$50, and \$100 denominations will be much slower. In the case of the United States notes it is a ques-

<sup>1</sup> United States notes net \$346,681,000.

tion whether the \$5 denomination of that form of currency can be forced from the field. The act has certainly bettered matters greatly, the dangerous treasury note is being rapidly retired and the silver certificate given a definite field of circulation. The latter is virtually a token money, and now that Congress has acknowledged the principles of such money in the limitation of the amount and indirect redemption, it may circulate in the place provided for it without the dangerous influences at work in 1890-3. The currency as a whole is in a much better condition than at any time since 1860, and the reclassification now going on will tend to further improvement.

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#### SAFEGUARDING OF FACTORY MACHINERY.

ALL civilized nations have enacted laws for the safety of working people who are employed around machinery, and every state in the union has some specific laws which refer to guarding of machinery. The beneficial effects of such legislation can best be observed in the efforts of mechanical engineers to devise means by which all points of danger to an operator of a machine may, as far as possible, be guarded, and the modern manufacturer, in this country at least, has shown great skill and ingenuity in solving this problem. He has been so successful that it is safe to say, safety guards, aside from being useful, today, are also an ornament to machinery.

Let us look at some modern laundry machinery. There we find that all gears and cogwheels are effectively shielded. The big steam mangle with its three pairs of large rollers has a roller guard in front of the feed roller, which makes it absolutely impossible for the operator's fingers to be caught between the heated rollers, and the top of the mangle is protected by an iron screen. This screen is there for the sole purpose to prevent the operator from reaching over the rollers if she should want to rescue a sheet which has been going the wrong way, or to straighten out a piece of fabric which got doubled up. The extractor has been provided with a foot brake, and the outside bowl is covered by a wire hood, and it is impossible to reach down into the revolving inner bowl as long as the same is in motion. The pressman in a modern printing establishment may work with a feeling of perfect safety around his press, for all gearings have been guarded by orna-

mental shields. Woodworking machinery, which is operated at high speed, has also received due attention. The old-fashioned wooden tables of jointers, shapers, and saws have been replaced by solid and smooth iron tables and their different mechanical devices for the purpose of guiding the operator in his work are safe and easy to handle. A great source of danger by the operation of circular saws has been eliminated or reduced by the adjustment of a steel splitter to the saw table, behind the saw. This splitter prevents the wood which is to be worked upon from binding on the saw; for if a piece of wood closes in on the saw it will be hurled back with great force, and numerous are the fatal accidents which in this way have occurred. Passenger and freight elevators have been provided with self-acting safety devices, which hold the cab securely to the sliding guides in case of a break of the cable, and the former chains and handbars on freight-elevator landings have been giving way to automatic raising and lowering gates. Statistical researches ascribe fully 50 per cent. of all accidents to workmen on machinery, to exposed collar set-screws and unsafe shaft couplings, but the old-fashioned collar with its protruding, square-headed set-screws, and the shaft coupling with exposed bolt heads and ends, an eyesore to a mechanic, have been replaced by safety collars and couplings, and an up-to-date manufacturer of machinery would just as little think of turning out shaft collars and couplings of the old type as a Sunday-school teacher would of adopting the *Police Gazette* as a text-book for religion. It may be said that modern constructors of machinery have not spared energy and thought to make machinery as safe as possible without interfering with their utility, and they have done much towards reducing the chances for accidents to persons that have to work on such machinery. Today there is hardly any excuse for an accident caused by exposed collar set screws or shaft couplings with projecting bolts, and operators of establishments where such accidents occur should be held to strict account for the same. Safety collars and couplings do not cost any more money than the old-fashioned ones, and it is hard to conceive why their use has not become universal. Some machine shops which have no conception of the progress of times cling stubbornly to old customs, old practices and styles. They absolutely disregard the safety factor in the construction of machinery, and today as well as in former days they will turn out old-type collars and couplings.

The writer, some years ago, visited a new woodworking establish-

ment in a country town. The machinery, which had been bought from a large manufacturer, was, as far as safety appliances are concerned, in excellent condition, but the shafting overhead was equipped with collars and couplings of the old style, having ugly set-screws and bolt ends sticking out. Upon investigation it was ascertained that the owners of the establishment had the collars and couplings made in their own foundry and machine shop. Another instance of careless mechanical construction was found in a small machine shop which builds gasoline engines for use in country grain elevators and on farms. The end of the crankshaft was sticking out beyond the hub of the flywheel more than eight inches. Its edge was sharp, with a keyway on its surface. The surplus end of shaft was of no use, and a source of danger.

The different labor bureaus and mechanical journals in the United States have for many years maintained an educational campaign with regard to safeguarding machinery, and the claim of ignorance can no longer be an excuse. Manufacturers of unsafe machinery, and machine shops which have no conception of modern safety devices, should be pronounced unfit to take care of our machinery.

JULIUS MOERSCH.

ST. PAUL.

#### COLLECTIVISM AND INDUSTRIAL DEVELOPMENT.

SOCIALISM, notwithstanding its very extensive literature, has hitherto been without an authoritative and comprehensive summary of its teachings, its economic basis, and its constructive program. Professor Vandervelde has proposed to fill this vacuum,<sup>1</sup> and his qualifications for the task are such that the work has been called the most valuable contribution to socialistic literature since Marx. As an original investigator, Professor Vandervelde has published, besides his recent works on the Agrarian question and the socialist movement in Belgium, several important contributions to social science. As undisputed leader of the Belgium movement, he is at the head of the best organized and perhaps the most successful socialist party of Europe. He embodies not only the breadth and experience of that movement, but is a confessed admirer of the Fabian Society, of English municipal socialism, and of the more liberal continental leaders. His work, though rather brief,

<sup>1</sup> *Le collectivisme et l'évolution industrielle* (Paris, 1900); published in translation as *Collectivism and Industrial Evolution* (Chicago, 1901).

and primarily intended for a French-speaking audience, will be welcomed by every student of the movement. Its principal interest lies in its constructive program, which indicates what will appear to many as a revolution in socialist doctrine, and its exposition of the relation of the movement to the present system and conditions of production. The latter discussion brings the socialists into a field hitherto strangely neglected by them, though the economic waste of production is always brought out as the underlying cause of the great change to come. It is for this reason that the author has adopted the double title.

After summarizing the history of modern industry in the three periods dominated by personal property, capitalist property, and social property, the author hastens to describe this too simple scheme of Marx as merely a prevailing tendency which "cannot be adopted rigorously and absolutely to the frightful complexity of modern phenomena," and though he approves of the ensemble of the Communist Manifesto, he finds in it traces of a "catastrophic utopia." This he considers a double error, for, while agreeing that the evolution of industry will furnish the necessary environment for the proposed change, he appears to think, with Sidney Webb, that the inauguration of socialism means "the conscious organization of industry" for the welfare of society.

Under the heads, "The Decay of Personal Property" and "The Progress of Capitalists' Property," the author describes existing conditions in industry. The decay of personal property has been a subject of special study for M. Vandervelde; his principal contributions to economics lie in this province. Slightly altering his arrangement, which is lacking in clearness, we find the following theses maintained:

1. While the number of independent producers, agriculturists, artisans, and shopkeepers has increased in recent years, this increase has not been so rapid as that of the proletariat. Moreover, those industries in which the number of independent proprietors has not increased, embrace nearly all the more important and fundamental branches, such as transportation, telegraphs, banking, insurance, mining, lumbering, quarrying, the production of salt, sugar, petroleum, gas, water, tobacco, alcohol, clothing, meat, etc.

2. M. Vandervelde, however, does not rely upon the gradual disappearance of this "personal property," he points rather to its decadence. It is contended that this kind of production involves both social waste and industrial misery.

If they involve an economic waste, how do small farming, domestic manufacture, and small shopkeeping hold out against organized capital



and industry on a large scale? Several explanations are suggested, each of which is applied to one or more of these branches. The author claims that the so-called independence of the small producer is often independence merely in name, and that he is dominated by the producers of raw material, by the owners of transportation and financial facilities, or by the monopolists of the market in which he sells. The small merchant often surrenders the last remnants of independence and becomes a mere agent of the manufacturer. Being in reality then dependent on capitalism, workers in these industries are apt to gain little more than a wage, while they are required to furnish and risk their small capital and so rid their economic masters of a burden these must otherwise assume. Sometimes this economic dependence becomes almost personal, as in the case of those artisans and shopkeepers who purvey to a small and highly specialized taste. It is the very nature of luxuries to be in such limited demand that they cannot be produced on a large scale, yet to have such a high value that they reach some economic importance. The producers and sellers of such commodities are dependent on the personal whims and unforeseen decisions of the purchaser. They differ little from those producers who are dependent on single individuals, such as gardeners and tenants of gentleman farmers. There is nothing to prevent the wealthy from enlarging these classes to the extent their incomes allow, and there can be no question of waste where a small group of individuals is privileged to fix the values of the wares.

Another cause given for the survival of apparently wasteful methods of production is economic parasitism. The producers may be drawing their real support from sources other than their principal employment. Such parasitism takes several forms. The worker may be drawing an income of other labor than his own, but more frequently it comes from the labor of other members of his family. In this way men-employing factories have migrated to the she-towns, and pay a wage considerably below the average. Or the worker, having saved a small sum in his previous occupation, may invest it in a business, in which, as the failure statistics show, it generally melts away; since the amount saved is not sufficient to give a livelihood from a conservative investment, less safe ventures are entered upon. A perpetual stream of investors is maintained in this way that swells greatly the total number of establishments in the business, and often ends by demoralizing it and dragging the most cautious down.

Besides the social wastefulness of this "personal property," it is claimed that it brings unsatisfactory and often miserable conditions to the producer. This is familiar ground to American readers. The complaints of the small farmer are known to all observers of the late depression ; though his condition has received no adequate treatment, not even at the hands of M. Vandervelde. The sufferings of the sweat-shop workers have been thoroughly exploited in recent fashionable agitations, and the misery of the small shopkeeper has been almost gleefully told by the socialist propagandists. The author's object in gathering together proofs of the evils of this kind of production is, of course, to clear the ground of a proposed alternative for socialism, the return to former competitive conditions.

On the facts of this economic waste the book is unusually comprehensive and accurate, and the conclusions drawn from these facts mark a very important advance, an advance which will probably appear as a revolution in doctrine to casual observers of the socialist movement. The first of these conclusions is that a different evolution than the Marxian is conceivable, and personal property may pass into social property without going through the intermediate capitalist stage. Also, since this kind of property realizes in a sense the socialist idea of property joined to labor, socialism has no notion of using any constraint to make it collective, and it is even possible that "certain branches of autonomous production are destined to survive the capitalist régime."

Opposed to the decay of personal property is the progress of capitalist property, of corporations, combinations, and trusts. The trusts, thanks to their superior productive power, are invading all branches of industry (except, of course, the above mentioned survivals). Their technical advantages are claimed rather than described, and their economic superiority is attributed in a very general way to the ability of large capital to withstand a longer period of underselling than its rivals. To Professor Ely's contention that the possible field of the trusts, as well as their technical superiority, is rather narrowly limited, Professor Vandervelde cannot be said to have given an effective answer, though it must be remembered that he labors under the heavy disadvantage of being less familiar with the American development. He has, however, avoided the error of claiming the existence of a tendency to absolute monopoly, taking rather the prevailing trust as the type of concentrated industry for the immediate future with which

he is concerned. But he thinks its field will extend. Those who set a limit to the scope of the trust are compared to Adam Smith and others of his day, who set approximately the same limit to the field of the newly grown corporations of that time, namely, banking, insurance, transportation, and the so-called public utilities represented then by the supply of water. Vandervelde would extend this limit to include all those industries whose products are widely consumed, though he gives no definite enumeration. But there are also some additional exceptions to the rule of concentration, besides the survivals of "personal property," viz., the small employers. These are temporarily created by the progressive division of labor, and so form a special case. Before the advent of department stores, we find a large number of newly specialized shops. In manufacture specialization of labor continually begets new industries, branches proceeding from the parent stem. In country districts the production of market values replaces the production for domestic needs, and small producers and retailers arise to supply the local market. New industries generally, whatever their origin, begin on a small scale. In agriculture other causes, not socially defensible, give an advantage to the small producer, such as increased rents, unwillingness of tenants to make improvements, the greater relative importance of the production for domestic needs and of his own labor to the small farmer, etc. Here again the discussion is very suggestive, but, perhaps owing to lack of space, incomplete.

If some industries are not necessarily to be socialized, neither is the field of socialization, on the other hand, to be limited to those highly concentrated and highly organized industries which could economically be operated by the present state, since the future state is itself to be better organized and capable of greater things. This extensive socialization is justified on the productive side by its expected effect in eliminating the waste of the competition sustained by the above-mentioned workings of the private-property system. The political necessities of a party asking for immediate power must benefit by this point of view which makes equally undesirable the survival of competition or the growth of the trusts. On the other hand, the obnoxiousness of the trusts is confessed to be the more popular arraignment, and is therefore given all the emphasis. M. Vandervelde is more conservative in his predictions about the combinations of capital than most of his predecessors, but some of his statements

are being widely questioned in view of recent developments. Is the "reserve army of labor" being increased by the trusts? Are the unions weakened in the long run? Is the social and political power of the trust greater than that of the middle class? Relying on the more direct methods and the more concentrated responsibility of the trusts, M. Vandervelde has little to say of that "class consciousness" that plays such an important rôle in socialist theory. A large, powerful, and diversified middle class is supposed in this theory to use every avenue of civilization as a means of defense of existing property institutions, and to sink all the wider and higher aims of civilization in its desperate struggle to survive. This theory, whatever truth it may contain, is jealous of any general or even personal exception. It has done much to make the socialist proposals unpopular, and is carefully avoided by M. Vandervelde. But whether the recent combinations have increased the power of capital, or have weakened it by exposing its aims, concentrating its responsibility, and lessening the number of its adherents, is an open question.

The importance of the question of concentration of wealth is not minimized as is that of the concentration of industry. The causes working in either direction are broadly treated, and the complex statistical controversies with regard to the existing facts avoided. Unless the concentration of capital is counteracted the concentration of wealth will result. Are the savings of the workers such a counteracting force? M. Vandervelde shows from Belgian returns that the average annual income from savings accounts in that country is 13.05 francs, that more than 60 per cent. of the total number of these accounts would not give one-third as much, and that in the Belgian investigations it was found that only 1.8 per cent. of the workers' households had an income from any source whatever except their labor or public assistance.

But do the corporations have a tendency to increase the number of shareholders and so of the propertied classes? Do they tend to democratize wealth? As this claim is being broadly made by the defenders of the present trust movement its discussion is of immediate interest. M. Vandervelde's answer is at least suggestive. He acknowledges the increase of the number of those enjoying unearned incomes, but claims that the proletariat is increasing still faster and that these two classes are absorbing the independent producers. Moreover, while there is a considerable increase in the number of those

having incomes above the minimum of existence, the increase of "capitalist proprietors" is comparatively slow. The progress of production has reacted on the general well-being, but it has also caused, in a larger degree, the centralization of wealth. Here is thrown overboard the "Iron Law of Wages," sent to join the wreckage of other venerated dogmas, the "Class Struggle," the "Marxian Scheme of Industrial Evolution," the "Materialist Conception of History," in its narrow sense, the "Right of every man to the Product of his own Labor," the "Disappearance of the Middle Class," the "Complete Dominance of the Trusts," etc. This wave of iconoclasm will appear to some to have destroyed socialism itself, to have robbed it of its very life and spirit; but the unity of the Belgian movement which sustains such theories would seem to indicate otherwise. Moreover, this is an evolution and not a revolution in socialist views, for every one of these doctrines has been attacked before by socialists. The socialist respect for tradition has always brought gratitude to the historic founders of the faith; but so little is now retained of the former spirit of their doctrines, they have recently been so disfigured, and the phrases are so fast losing their hold on socialist literature that the layman must consider them obsolescent.

To return to the concentration question, M. Vandervelde minimizes the advantages offered to the people in becoming shareholders of the large corporations; he points out the dangers to the small investor from inexperience, from unavoidable ignorance, from concentration of risk, and from the greater difficulty he experiences in accommodating his income to the exigencies of profitable investment. Besides, the income of the proletariat is needed for insurance, education, etc.—investments which may be of greater importance to the individual but have no direct tendency to give the class a larger share in the product. Moreover, whatever the effect of the growth of corporate property upon distribution, "it is precisely to this depersonalization of capitalist property, freed from all connection with actual labor of the possessor," that Professor Menger attributes the revolutionary tendency in production. He says: "The more the disproportion increases between the legal title and real power, the more complete the change from small property to large property and from the latter to the mere possession of title, the weaker grows the whole structure of the system of private titles." In other words, while a somewhat wider distribution of stock may buy the silence of many, it will not heal the disease either of production or of distribution.

The critical part of the work is closed with a discussion of the elements of profit which constitute its defense. Profits are not altogether the wages of insurance, since a high average rate of profit remains after distributing individual losses. Moreover, it is these very individual losses that constitute an important element of social waste, especially indefensible when they result from speculation. The second element, abstinence, is only justified in the following sense. Under socialism, "the collectivity would need to exercise abstinence and devote a large part of its products to the maintenance and renewal of social capital; but it would not have to pay an additional sum to reward the exercise of this abstinence, to stimulate the capitalist to save rather than to consume." That profits are not the wages of superintendence is shown by the replacement of active capitalists by salaried managers. "For the stockholders," says Max Weiler, quoted by the author, "accomplish not one of the multiple active functions of the capitalists; all those in fact who assume the various responsibilities of the general administration, of technical and commercial direction, and of financial control, are rewarded by fixed salaries." This is the dead weight of "passive capitalism." On the other hand, the "active capitalists" are appreciated as men of initiative, the promoters and managers of enterprises, the modern conquistadores, who with an energy which is in most cases equaled only by their lack of scruple are incessantly creating new enterprises and bringing into order the enterprises of new countries." In view of this the very evident activity of these "passive capitalists," of those exercising the purely pecuniary functions, the author would have done better to have used the recently suggested distinction between pecuniary and industrial functions. He avoids the difficulty of discriminating closely by admitting that a life-interest in property may partially be justified in the case of the active capitalist. But an hereditary interest cannot in any case be so justified, and is therefore vulnerable to the socialist attack. By limiting the right of inheritance but not suppressing it people may still be stimulated to labor for their descendants and posterity. Though this limitation might injuriously affect the labor of a few, the existence of unearned incomes is a far heavier blow to the general ambition.

This brings us to the constructive program. Three generalizations underlie it:

1. There is a social product in excess of that consumed during the process of production.

2. This product is produced by labor. Vandervelde lays emphasis on the negative expression of this principle ; the product is *not* produced by the capitalist in any part, especially not by the inheritors of wealth.

3. Even when invested in production and not consumed, this surplus is wastefully employed, since the system aims at individual profit and not at social welfare.

On what principles, then, are production and distribution to be reorganized ? As to distribution, the doctrine that "each man has a right to the entire product of his labor" is repudiated on the ground that wealth is social in its origin. Even the negative statement of this principle should be expressed in social terms. That is to say, unearned income must be disapproved as a whole ; the capitalists must be considered as the members "of a vast impersonal corporation who divide among themselves the benefits derived from capitalism *pro rata* to the number of shares." The communist principle, "To each according to his needs, from each according to his ability," is valuable as an ideal but will not assure the maximum productivity on account of the egoism of today, although the time may come when "the progress of morality and of social unity, the abundance of production, and the disadvantages and difficulties of any other mode of distribution may result in a general application of the principle. At any rate certain *common* expenditures should be made before a distribution to individuals should take place, such as increased public services of all kinds, an extension and elevation of the minimum wage, provision for the future, and the reward of those intellectual and artistic workers whose productions are of a public nature.

As a further solution nothing would prevent the adoption of the present system of graded salaries in the public services. This is, of course, pure opportunism and the author hastens to add that all "solutions must necessarily vary according to the times, the places, the industries, and the degree of intellectual development of the producers." It is at this point, then, that the utility of the socialist principles ends as far as distribution is concerned. The author adds, however, an abortive and rather hazy suggestion of automatic adjustment.

A chapter is devoted to the defense of this revolution in the system of economic rewards against prevailing attacks. In it copious and sometimes original arguments are given in an attempt to show that individuality, individual liberty, and individual initiative would gain rather than lose under the new régime. The high place given to art

and literature and to the development of character in this discussion suggests that it is in these matters that the author takes the deepest and most personal interest.

The end of socialism is "the collective appropriation of the means of production and exchange, the social organization of industry, and the retention of the surplus product for society and the individual worker." In the social organization of industry there are three steps: the victory of the proletariat, the assumption of control by the collectivity, and the improvement of the governmental machinery. The first two stages, being nearer to practical attainment, are treated separately. The advantages of the extension of state control are: the reduction of charges, the improvement of the conditions of labor, the better treatment of the producers of raw material, the uniformity and social policy of charges, the improved quality of products, and the consideration of the interests of generations to come. Most of these points have been thoroughly discussed before, notably by the Fabian Society.

"But in a number of industries the extension of this kind of fragmentary collectivism would offer more inconveniences than advantages." These advantages would be generally "neutralized by the apathy, the routine spirit, the fussy sluggishness, the spendthrift habits, the indifference to the preferences of the public which are only too justly the reproach of the modern bureaucracy." But collectivism is not a mere extension of the present public domain; socialism is not "all for the state." If the bureaucratic state is referred to by those who accuse socialism of this aim, it is replied that this "is the very instrument for ruling which has for its essential motive the protection of the sum-total of the interests of the possessing class," and it is on this basis that the institution has evolved. If this accusation were true, "socialism would have no adversaries more bitter than the socialists themselves."

There must precede any such extension of the public domain "a whole series of transformations in the intellectual, the moral, and the politico-social order." For this reason socialists themselves often protest against such an extension today, all the more since the executive departments are often effectively removed from democratic control. "In order that the extension of collective property may be advantageous to everybody, the first condition is that the government belong to everybody." A second condition is the differentiation of govern-



mental and industrial functions, "a tendency to which is seen in all countries today," as in the management of the Swiss and Australian railways. Another condition is the decentralization of social enterprises by giving independence and responsibility to subordinates; as in industry, as at present organized, they should have freedom in the methods of executing their work, and should be held responsible for it. The municipalities and the present and new local units should also take a large share of the power.

Finally are discussed the means to be used to effect the changes contemplated when the socialists shall gain political power. Since it could not be accomplished practically in a single step and would therefore fall unequally on different classes, expropriation without indemnity is rejected as unjust. Indemnities must be paid and a heavy inheritance tax is chosen as being the best plan for raising them. Collateral and intestate inheritance is to be abolished and a 25 per cent. tax is to be levied on all other inheritances. Nothing is said as to the methods by which this single tax might be evaded.

The monopolies are first to be purchased and operated, later other important and fundamental industries. But there is no reason why the state should not at the same time aid, in every way possible, productive co-operation in other and more backward industries. "But whether the change will take place gradually or suddenly, peacefully or through a revolution, with or without indemnity, are questions which depend much less on our individual preferences than on social conditions. It is impossible not to think of Schiller's lines ending with the words 'struggle rules, and it is the strong that conquer,' when one thinks of the blind, tenacious, ferocious resistance with which the privileged classes always oppose the most modest proposals of the people." If force rules, the proletariat must gain that force — which they lack today. "They must raise their intellectual and moral power to the height of their aspirations, and they must prepare, through the free and spontaneous organization of the working class, generations which shall be ripe for the republican organization of industry." The workers must arouse the consciousness of their class interests and "with steadfast patience lend themselves to the conquest of political rights and power."

WM. ENGLISH WALLING.

## BOOK REVIEWS.

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*The Little Red Book of Bristol.* Published under the Authority of the Council of the City and County of Bristol. Edited by FRANCIS B. BICKLEY. Bristol: 1900. 4to, 2 vols., pp. xxxviii + 249 and viii + 283.

To the honour of Almighty God and for the tranquility of the inhabitants of the town of Bristol at the request of the Commonalty of the same town, I, William de Colford, Recorder there, in the eighteenth year of the reign of King Edward III. after the conquest [1344] have caused the ordinances, customs, and liberties hereunder set down, made for the commonalty of the aforesaid town to be recorded and entered in this book together with certain laws, other memoranda and divers necessary things to be inviolably kept in perpetual remembrance. [And] Whereas many good customs of the aforesaid town having been abused and some almost forgotten, on Wednesday next before the feast of Saint Katharine the Virgin in the year aforesaid, . . . the customs and ordinances in use from old time were gone over and approved [by the Mayor and Council] some being then amended with others newly made to be observed forever.

So runs a translation of a part of the first entry in the Little Red Book, and it discloses to us the inception and the purpose of the volume. It seems to have served as a sort of register or book of record, and the "ordinances, customs, liberties, together with certain laws, other memoranda, and divers necessary things" to be kept in perpetual remembrance, form a heterogeneous mass of contents. All these matters occur in the book in no special order or plan of arrangement; for 150 years after William de Colford successive mayors, with the assent of their council, ordered entries to be made, and the recorder seems to have inserted them in any part of the volume where there was convenient space.

Mr. Bickley, the editor, has found it necessary therefore to anticipate the reviewer, and to offer in the introduction a classification of the documents recorded, and has accompanied his classification with copious and helpful comments. He divides the contents into four groups. The first consists of liberties and franchises of the town,

oaths of officials, recognizances for orphans, ordinances of the common council, etc.; and the editor classes these all together because they are matters which peculiarly affect Bristol. There is little in this group that will lack significance to one interested in the development of local government and municipal regulation of economic life. But he will be disappointed who hopes that by means of the Little Red Book this development can be consecutively traced, for it includes only a small part of what it is essential for us to know. Far from a complete list of the liberties and franchises, and a comparatively small part of the town ordinances, are to be found in it. The royal charters and other grants of privileges seem to have been preserved among the archives of the town, and were sufficiently easy of access there, whilst the greater part of the proceedings and decrees of the council were perhaps not deemed worthy of "perpetual remembrance." Of the ordinances, however, two elaborate sets are given us, besides a number of others occurring singly and relating to specific subjects. The first set was adopted in 1344, and embodies the ancient customs of the town; the second is of later date, though still of the fourteenth century, and differs in no essential respect from the first. Both sets are miscellaneous in matter and arrangement. The duties of officials, the collection of debts, the care of streets, customs regulations, the rate of wages, the residence of strangers, forestalling and engrossing and other trade restrictions, the price of bread and ale, the pleading of writs, admission of burgesses—to such and similar subjects both sets relate, and they present to the reader a distinct view of the functions and policy of the municipal government at the time they were adopted.

The second class of documents consists mainly of ordinances of the craft guilds. Only seventeen of these organizations are enumerated in the Little Red Book, though one of the historians of Bristol records twenty-six in 1449. Nor is there any mention of the Merchant Guild, which certainly existed there as late as 1372. The "Rede Papre of the Yeldhall," as contemporaries called the volume before us, was intended to contain only those regulations that the craft-masters deemed of peculiar importance and those that they found it difficult to enforce. Some crafts, therefore, made much more use of it than others. The dyers, for example, appear in it very frequently; the farriers and allied crafts but once. While it cannot be said, perhaps, of such ordinances as are preserved that they throw any new light upon the nature and development of the guilds, as described in the works of Ashley, Cun-

ningham, and others, yet they certainly illustrate that development in a vivid and interesting manner, and in making them accessible Mr. Bickley has conferred a favor on students of history. The main purpose distinguishable in them all is threefold: to maintain a certain standard of excellence in the work done, to regulate wages in the interest of the masters, and to limit competition. The first of these prevails in the early ordinances, the second appears — for reasons that are familiar to us — in the latter half of the fourteenth century, while during the fifteenth century the third becomes more and more predominant. It is easy to see that Bristol was a progressive town, and that competition was manifesting itself both from within and from without. The dyers complain that many who have been neither masters nor apprentices, and even men of other crafts, are interfering with their employment. The weavers say that the wives and daughters of the masters are taking the place of men at the loom. The hoopers complain that aliens and others are practicing their craft. The cordwainers assert that there are certain masters among them that give work to men of "estraunge countrei." The weavers in 1462 lament the behavior of many of the craft who daily receive and put to work "straungiers and allions, and for their singuler profit provokyn and stere divers marchauntz to bring into their town people of divers countrees not born under the Kynges obeisaunce but rebellious which been sold to theym as hit were hethen people," wherethrough "such straungers and allions beth gretely multeplied and encreased within the Towne." It was in the effort to suppress such competition that the English craft guilds eventually lost their vigor.

The guild ordinances exhibit most distinctly the control exercised over the crafts by the municipal government, a control based on the necessity of municipal sanction in order that the rules of the crafts might be enforced. Thus the dyers passed certain ordinances and had them recorded in the Red Book in 1346, 1381, and 1407, and in the latter year they even had attached to them the seal of the mayor's office. To give them still greater sanction they had them confirmed by royal charters from Henry the Fourth, Henry the Fifth, and Henry the Sixth. And yet in 1439 we find the masters complaining that the ordinances are not observed, and "divers trespassours of ham dredeth not to contrarye and trespasse ayhenste ham . . . be cause thei have it not vnder the commone seall for the more warrant, wherethrough that the seid crafte is gretely hindred and schlaundred;" therefore

they desire them to be confirmed in writing under the common seal, which was done, and we hear of no more complaints from this craft.

The privileges and liberties granted to various other towns, boroughs and manors compose the third class of documents. These were inserted in the Little Red Book apparently in order that the burgesses of Bristol might know what rights visitors to their town could demand. Mr. Bickley does not give these documents in full, since they, or others like them, are easily to be found in print elsewhere.

All the rest of the contents the editor groups together in a fourth class. This is composed of a collection of notes and documents that seem to have nothing whatever in common except that they were deemed important by the business men of Bristol. Among matters of less consequence might be mentioned the Rules of Oleron for the regulation of the merchant service — which the editor does not print, as they have been several times published elsewhere — the Assizes of Bread and Ale, the jurisdiction of the Admiralty, and a remarkable fourteenth-century treatise on the Law Merchant. This treatise is by far the most unique, and in some respects the most important, document in the book. The editor comments with an astonishment in which we participate on its having so long lain unnoticed. In discovering its lurking place, recognizing its importance, and printing it *in extenso*, Mr. Bickley has rendered a boon to many who have long sought in vain for such a succinct, intelligible, and authoritative statement of the principles of this interesting branch of mediæval law.

Such is the Little Red Book, a volume full of material illustrative of the life, activities, and interests of a progressive mediæval municipality. The edition before us is worthy of the contents. Mr. Bickley has shown a praiseworthy discretion in deciding which portions to print in full and which to abstract or merely to enumerate. His notes and comments, both in the introduction and in the text, though always concise, are luminous and adequate. The printers have likewise performed their work with painstaking care. The illustrations, consisting chiefly of reproductions of charters, plans, and documents, have been beautifully executed; the two volumes in which the book appears are handsome in appearance, and are singularly free from misprints and similar defects.

THOMAS WALKER PAGE.

UNIVERSITY OF CALIFORNIA.

*Trusts and the State. A sketch of competition.* By HENRY W. MACROSTY. New York: E. P. Dutton & Co., 1901. 8vo, pp. 318.

*The Control of Trusts. An argument in favor of curbing the power of monopoly by a natural method.* By JOHN BATES CLARK. New York: The Macmillan Company, 1901. 12mo, pp. 88.

NO ECONOMIC or social phenomenon has ever given rise in the same space of time to such a crop of literature as the trust movement since it entered the acute stage with the advent of the year 1898. A perusal of any of the recently compiled bibliographies of the trust question is calculated to impress the conviction that the trusts have been productive of overmuch discussion, if of nothing else, and, so far at least, have been something of an evil. For the quality of the output, taken by and large, has not been of equal degree with the quantity. To say this, and to add that much of the discussion has been of a fugitive character, mainly of interest as supplying an index of individual, class, or sectional opinion, and little likely to exert much influence in the formation of an efficient public opinion, is only to say that the bulk of the discussion has thus far been of lay origin. It must, however, be admitted that the academic contribution to the discussion has not always been up to standard. Aside from two or three notable exceptions, there has been too much dependence on theoretical analysis, and not enough attention given to careful weighing of facts. Assertion and assumption have too often been made to do the service of demonstration. Above all, there has been too much disposition to seek for single and simple causes, too much disposition to treat the evolutionary formula as the one and sufficient key to the interpretation of the trust movement. The fact is, as experience has already abundantly showed, that the trust movement is motivated by too many different causes to make such a procedure anything other than naïve.

Some of these defects of method are exhibited in one or the other of the books here under review. But, on the whole, they may be said to have advanced the discussion to a higher level.

Mr. Macrosty's position is that of a socialist and evolutionist, and his volume is published as the first in the new Fabian Series. The best and the largest part of his book is taken up with a careful examination of the workings of the modern system of competition. In order to see the trust in its proper historical perspective and economic

environment, and thus to arrive at a true appreciation of its causes, Mr. Macrosty has found this examination necessary. These chapters of his book constitute the best introduction to a study of the trust system we have yet met. They reveal the shortcomings of the competitive economy in a glaring light. There is nothing strikingly new in Mr. Macrosty's findings; but his analysis is so thorough, exhaustive, and enlightening, that it gives one a very much livelier appreciation of the insufficiencies of the system of competitive capitalism than he is otherwise likely to have. To quote a single example of Mr. Macrosty's demonstration of the inability of the capitalistic system adequately to control production :

The community is interested only in the accommodation of the whole supply to the total demand, but it is to the interest of each individual manufacturer to secure for himself as large a share of that demand as possible, without regard to the probability of there being an oversupply. To secure custom, he must underbid his competitors; to make the low price profitable, he must reduce his expenses of production. There is thus a permanent stimulus to the improvement of organization and to the invention of new processes; but, as soon as these advantages are gained, they are immediately lost by competition, and the enhanced profits are either dissipated in expenses or handed over to the consumer. The old economists justified competition on this very ground, that the desire for private gain first drove capitalists to improve their industry, and then compelled them to part with their profits to the general public; but they arrived at this attitude only by neglecting all the other aspects of the problem (p. 104).

After all, men are in business, not to exhibit the "natural" laws of economics, but to make an income, and it is a poor consolation to a bankrupt to know that he has been overwhelmed by a stream of tendency (p. 152).

It is better to combine than to fail, and so we find co-operative capitalism, under one form or another, presenting itself as the leading feature of the industrial movement today. It has all the marks of permanence and necessity; it is not confined to any one country, and accidental causes will not explain it. Mr. Macrosty takes sharp issue with the view of M. Paul de Rousiers—a view that has found favor with Professor Ely and others in this country—that there is always something "of an exceptional and artificial character," such as the tariff or railways discrimination, in the conditions resulting in the formation of a trust. Well-established economic forces, that are as operative in Europe as in America, and that can all be summed up in the phrase "destructive competition," adequately account for the trust

movement, which "is the dominant feature of British industry today" no less than of American. "Competition, like the scorpion of fable, is stinging itself to death" (p. 147). If it is the life of trade, it is none the less the death of businesses. And, hence, modern industry is seeking salvation in the opposing principle of association. Combination is, therefore, the order of the day, and "the immediate future of industry lies with the private monopoly" (p. 204); and "private monopoly threatens to overwhelm the state by economic and political oppression" (p. 317).

Here the "trust question" begins to emerge. Mr. Macrosty makes no doubt that trusts, combinations, and all other forms of monopoly, mean a great advance in the organization of industry. But private monopoly is a public danger, because we cannot with safety rely upon the self-interest of its proprietors either to supply the needs or supply the services which the community demands, in the manner most conducive to the common welfare (p. 211). "The problem is, how to secure the benefits of combination without its disadvantages." For Mr. Macrosty, as a Fabian, this question suggests its own answer: "In the collectivisation of industry lies the future hope of society. We cannot go back to competition, but we can direct the new tendency into safe channels" (p. 317).

This is a bald statement of Mr. Macrosty's argument, and it would be unfair to leave it without bearing testimony to the literary skill with which it is presented, the careful and discriminating survey and interpretation of facts and forces with which it is at almost every point supported. There is, however, one weak spot in the argument to which we feel bound to call attention—the assumption, namely, that trusts are, of necessity, monopolies. This, if one may be permitted to say it, is *the* trust question, not to be lightly passed over, but to be as exhaustively analyzed as the apparatus of scholarship permits. The monopolic power of combination is a question of fact, to be investigated as one of fact, not a condition or result to be assumed in accordance with preconceived opinion or prejudice. In the face of his admissions "that even existing trusts steady prices" (p. 206), and that, while "there is some evidence that British combinations have raised prices, . . . there appears to be no ground so far for supposing that the new rates are unreasonable" (p. 208), we find it hard to understand why Mr. Macrosty should have allowed himself to take the monopolic power of trusts so much as a matter of course. The ques-



tion is not yet settled against competition, after all, and one need not enroll himself among old-fashioned individualists to take comfort, rather than alarm, from Mr. Macrosty's confession of faith, when he writes: "The essentially important thing is not that prices are raised, but that the only safeguard of the consumer consists in the perspicuity of the managers of these great combinations" (p. 208). Nobody but a socialist would gather from this that the logic of the situation demanded "public ownership of industry" as the only way of saving the public.

It is just here that Professor Clark's little book is likely to render a timely service in calling attention in vigorous fashion to the persistence and regulative efficiency of competition, even under present-day conditions. He is the knight of potential competition. Distinguishing between centralized production and true monopoly, it is the especial concern of his book to show that there need be no fear that the former will develop into the latter, if law and public opinion do their work in keeping the field of industry open to all comers on fair terms. Centralized production we want; monopoly we do not want. The way to secure this, is to keep competition alive, by removing those obstructions to its action, in the shape of railway rebates, factors' agreements, local cutting of prices, and analogous forms of "predatory competition," which the trusts are now trying to erect. In Professor Clark's scheme of salvation, the independent producer is the savior: "Save him, and you save the great interests of the public."

The position and philosophy thus briefly indicated are outlined with skill and power in the eighty-eight pages of Professor Clark's book. An exultant optimism, based on the accepted adequacy of the natural force of competition—just such as we should expect from the author of the brilliant *Distribution of Wealth*—pervades the pages of this little volume, that sometimes rises to the height of eloquence. But, withal, neither the reasoning nor the eloquence of Professor Clark quite carry conviction. Without further comment, we record our impression that the world which Professor Clark is here explaining is not the world that is. Something has been left out. In consequence, the logic of his argument is better than the substance of his conclusions.

A. C. MILLER.

*A Study of the United States Steel Corporation in its Industrial and Legal Aspects.* By HORACE L. WILGUS. Chicago: Callaghan & Company, 1901. 8vo, pp. xiii + 222.

As THE title suggests, Professor Wilgus has divided his study under two heads, the formation and the industrial position of the United States Steel Corporation, and the legal considerations that affect its status as a "trust." Under the first head the author is the faithful recorder of facts, deferring his personal opinions to the latter. A vein of optimism cannot, however, be concealed.

The presentation of the conditions that preceded and led up to the formation of the trust shows the hand of the lawyer. It is graphic and logical. The reader is given a bird's-eye view of the situation which brings out the main features without overburdening details. "What Is It? Who Formed the Combination? Why Was it Formed? How Formed?" are the subheads under division on "Formation." The human element has not been neglected. The personalities of the chief actors, J. P. Morgan and Carnegie, have received a brief sketch. Professor Wilgus must be given due credit for calling attention to the influence of the personal element in the directing of economic activity. The human actor is too often overlooked in economic treatises. Another valuable contribution to the discussion of modern business organization is the author's analysis of the management of this great corporation. The machinery by which the enormous resources of the corporation are held together and made effective in all its ramifications, the source of initiative and vigorous policy, the dwindling power of ownership as typified by the shareholders and the growing power of control of the directors are often overshadowed by the magnitude of the productive results. What the author has done to present a clear analysis of the managerial function in the case of this corporation will be appreciated by every student of corporate activity.

In treating the legal aspects of the United States Steel Corporation the author asks, "Is it an illegal trust?" The illegality of a trust depends upon its substance and its form. Although it is never quite fair to quote an author's summary without indicating his argumentation or qualifications the following quotations give in substance the author's position:

From the review we have taken of the industrial side of the United States Steel Corporation, and waiving all questions of form, it is reasonably certain

that it is a combination made with the intent, effect, power, and tendency to restrain competition in the iron and steel business (p. 74).

In regard to the illegality of form the author draws parallels between the forms of organization of the Standard Oil Trust and the steel corporation showing the virtual similarity of both, and ends with the remark :

If these views be correct, it is not unlikely that in the states having a policy forbidding the creation of trusts and monopolies, the court will hold it [the steel corporation] to be an illegal trust within even the strict meaning of that term (p. 86).

The optimistic view of the author as an economist seems, therefore, to come in conflict with the conclusions of the lawyer. Any combination that has the power and tendency to restrain competition is sinful before the law. The old status, where free competition was the guardian, or was supposed to be, of just prices and social welfare, must be preserved by the court. The author recognizes the human factors that are constantly at work in society, discarding old methods and seeking new forms more adapted to an efficient and profitable business. These new forms come in inevitable contact with the legal recognition of the old, and the author finds himself in a dilemma how to preserve the value of the new form of business without breaking the law. This dilemma remains unsolved. The author shows that the state and federal governments have power to control the business of a corporation when it becomes injurious to the public welfare. The artificial raising of prices through combination is unlawful. But combinations that have this power inevitably grow up. If the United States Steel Corporation is unlawful, for the reasons stated, then its existence should be made impossible by the courts and not only its possible effect upon prices. A compromise must be found by the law wherein the trusts will be recognized and public interest maintained through other safeguards than those afforded by free competition.

To complete the comprehensive view of the power and extent of the United States Steel Corporation, tables and appendix are added to the main discussion. Professor Wilgus's contribution is one of the clearest and most practical of the books on trusts.

S. G. LINDHOLM.

*Taxation of Corporations in New York, Massachusetts, Pennsylvania, and New Jersey.* By ROBERT HARVEY WHITTEN. Albany: University of the State of New York. New York State Library (Bulletin 61. May, 1901. Legislation 14). 8vo, pp. 193.

"THE aim of this study is to present the corporation tax systems of these four states in which corporation organization is so strongly developed." The bulletin is arranged in three divisions: a comparative summary giving a brief review of the several systems; a summary by states; and a compilation of the corporation tax laws of these states. A list of the authorities consulted is inserted before the compilation of laws.

The captions in the summary by states are general business corporations, public service corporations, state and national banks, trust companies, savings banks, insurance, incorporation and license tax, and shares and bonds; the whole being drawn up with a view to comparison. Dr. Whitten has taken the precaution to submit the proof of this division to the tax officials of the respective states, so that its accuracy and completeness may be relied on.

The text of all the tax and general laws, which are deemed necessary to present a complete view of the methods of taxing corporations is given in the compilation of corporation tax statutes. References to court decisions are made so far as they are essential to an understanding of the bases and systems of taxation; those relating to technical administration are omitted. The study is complete to May 1, 1901, and it is the intention to keep it up to date by frequent revisions, and perhaps later add other states, especially Ohio, Indiana, and Illinois, to the list. The excellent arrangement of the material in the summary of the laws by states, makes prominent the diversity of systems or their absence. This is so far the case that one is interested when the author points out that there are "a number of points of similarity between the systems of New Jersey and New York." Changes, as in the manner of assessment by state rather than local officers, have been made, not from a sense of the injustice of the former system, but because the local assessors were unequal to the task.

The term public service corporations here includes "all transportation and transmission corporations and all corporations exercising the right of eminent domain or any franchise to use streets or public

places." Under this heading there are some interesting remarks. Many states have given up actual value as a basis of assessment in favor of gross receipts, mileage, par value of shares, etc., the justification being that they are comparatively simple and certain. But "they are unequal and arbitrary, the rate imposed being necessarily fixed by guesswork or intrigue." Corporate interests have usually favored them "because of their definiteness, and because the amount paid is usually much below their proportionate share of the burdens of government as measured by net income on the actual value of their property." Net income and actual value of property including franchises, in the view of the author, are the only bases of taxation that can be plausibly defended. However, he does not clearly indicate how the latter is to be estimated. A state board — upon whose superior ability reliance may be placed, it is suggested — presumably, would execute the plan. The general trend seems to be in this direction. However, there is no pretense that this is a treatise on taxation, and these are but *obiter dicta* in which the compiler does not indulge in the other sections. The bulletin, with its table of contents and complete index, is full of accurate and easily found information.

C. C. ARBUTHNOT.

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*La propriété rurale en France.* By FLOUR DE SAINT-GENLIS.  
Paris: Armand Colin, 1902. Small 8vo, pp. xviii + 445.

M. DE GENLIS'S work is a *mémoire* crowned by the French Academy of Moral and Political Sciences. The reasons for its acceptance are set forth in an introduction by the official *rapporteur* of the society. Both the *rapporteur*, M. de Faville, and the author rank rather high among the new school of investigators of national and economic questions (as shown in the *Bulletin du Comité des travaux historiques*). This school devotes itself to the study of local phenomena of the past, in order to come to know French economic history in all its bearings, and establish on a secure basis some of the theories concerning her economic policy in the future. A country has a certain physiognomy, definite traits which are the work of nature, and which maintain themselves whatever man does to efface them. The question is, in the first place, how to be true to these traits, rediscover them, redevelop them, make them what they were meant to be, not spoil them or distort

them. To effect this, knowledge of what the country was, is, and can be, must be made accessible; and these scholars, without yielding anything essential in method, are trying to reach, in their monographs, a constantly wider circle of readers. The desire for information in all classes is evidently growing, as one can see, intelligent Frenchmen are fully awake to their responsibilities. This patriotic work of making the landed proprietor understand his position and secure the proper exploitation of his land as well as the preservation of his fortune, is evidently cherished and encouraged by the Academy, which offers prizes of considerable magnitude for this purpose.

The present volume augurs well for the character and outcome of this beneficial propaganda. Wherever one opens the book it is found singularly instructive, and, for a wonder, it is written in an engaging style, compact with information, but sifted and placed so as to furnish the same problem with constantly new illustration. There is, of course, some repetition, such as the same quotation repeated twice (for example, pp. 66 and 165), but, for the sake of getting a thorough grasp of the matter, the reader easily forgives this. The author is indefatigable in demonstrating his point of view, the eager life of a closely scrutinizing and keenly adjusting mind throbs everywhere, and one receives, in these closely packed pages, a mass of information which in truth makes the volume a valued guide. And M. de Saint-Genlis's book does not merely present phases with which one is to some extent familiar and which have their parallels in economic history elsewhere, but gives also new and even surprising views, as in his historical sketch of the vicissitudes of the peasant property and the gradual despoilment of the seigniorial estate. For all this he has documentary evidence, as it seems, of the most convincing sort, not only in statistics illustrating the modern problem of rural property, but in the old accounts of notaries wherein are registered the sales of land during some hundred years—which make the book in every way both comprehensive in scope and suggestive in detail. For these reasons the book ought certainly to reach a wide circle of readers also in foreign countries. As the *rapporteur* says, in his introduction, "the richness of the documentation and the solidity of the reasoning hold the attention of the reader and strengthen his confidence in the results obtained."

France, from the beginning of its history, has been a country of agriculture; her people have a love for the soil, which in the cultivator par excellence, the peasant, who lives for and by the land, reaches the

height of passion. From the earliest times the land has been divided between the large and the small landowner, the *seigneur* and the *affranchi*, as M. de Saint-Genlis calls them. Compared with these the third kind of ownership, the medium estate, is of rather recent origin (fifteenth and sixteenth century). It begins with the burgher being seized with a longing for country possessions and buying from the sales of bankrupt seigniorial estates or speculating in the misery of the peasant. Concerning the small property, however, to which he pays particular attention, M. de Saint-Genlis points to the interesting fact, which his study of archives has revealed, and which the theory of economic history has so far ignored, that France has not merely had feudal estates, with lords and tenants (serfs), but freed serfs as well, the peasants proper, who held or possessed land which the lord had willingly sold them and for which they paid either a fixed rent or a share of the profit. The seigniorial estate gradually dwindled until the lord had nothing but his little reserve outside the walls of his castle, and lived largely by the dues from his free tenants. Time after time, when crises of long and bitter duration had shaken the national structure to its foundation, not the large estates, but the small, have shown the greater power of recuperation. After national disasters France has been again and again covered with myriads of little farms where the peasant, with his infinite patience, obstinate energy, and love for the soil, proceeded to gain a livelihood for himself and others, being, as reward, preyed upon by tax gatherers and lordly exactions. The great act of liberation which the Revolution brought about, the author declares, was not presenting the peasant with land, for this he already had, but redeeming him from the atrociously increasing public burdens which deprived him of the return from his labors. It made him a man, instead of a coward who trembled at the sight of a stranger, shirked and lied and hid his earnings, simulating starvation, in order that his little be not taken away from him. For the immediate problem of the future of agriculture in France, the statistical tables, with which the volume is richly furnished, will give valuable suggestions. They present such a wealth of detail that the reviewer must refrain from even approaching a discussion which would demand altogether too much space to be even approximately helpful. Suffice it to say that the author places no great faith in the duration of a perpetual agricultural *misère* which would fatally cripple the resources of France, and in the end deliver her up to her enemies. The study of her past

and her present, the awakened attention to her needs, and earnest effort to meet these, will finally bring forth a solution of the problem that will be in keeping with her true destiny. What her agricultural classes are now most in need of is an intelligent cultivation of the soil which can meet the exigencies of competition, a fair and sensible legislation such as will not hinder but further initiative, and associations among the peasants themselves which will effectively watch their interests and break the baneful power of the *bande noire*, the crowd of agents, speculators, money-lenders, and solicitors against whom the peasant class battles furiously, but, as it seems, as yet unavailingly.

A. M. WERGELAND.

UNIVERSITY OF CHICAGO.

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*Die Ergebnisse und die Aussichten der Personaleinkommensteuer in Österreich.* By FRIEDRICH FREIHERR VON WIESER. Leipzig: Duncker & Humblot, 1901. 8vo, pp. 147.

THIS elaborate statistical study was written for the purpose of bringing about an improvement in the assessment of the new income tax in Austria. It was a delicate task the author set himself, and he has discharged it with no little skill. The two assessments of the income tax, the first made in 1898 and the second in 1899, were both disappointing; at least to the national pride of Austria, for they showed, apparently, that the people of the empire were poorer than those of Prussia and of the other nations which have a similar tax on incomes. Thus, for example, there were in Austria, in 1899, only 29.56 persons assessed for the income tax in every 1,000 of the population, while for the same year there were 93.96 contributants in every 1,000 in Prussia. Or, to take another comparison, there were in Prussia 71,202 persons whose income exceeded 9,500 marks, while in Austria there were only 18,497 persons who reported an income of over 6,000 gulden, the nearest equivalent grade. To explain away these returns without either admitting that the Prussian people are nearly three times as wealthy as the Austrian, or directly blaming the administration for laxity in assessment, was a task which taxed the ingenuity of the patriotic Austrian writer. He has accomplished this task by taking refuge behind the statistics and by letting them, so far as possible, speak for themselves. This it is apparently which makes it necessary for the author to reveal to us, as he does with great minuteness, the entire



machinery of his investigation. As a result the essay reminds us not a little of a fine French clock with glass sides, for every wheel and cog, all the gearing, and the many fine chains in his argument are in plain sight. He asks us for no confidence, and assumes no responsibility for his opinions. Everything is worked out before us like a sum in arithmetic. The harshest phrase of condemnation that the author allows himself to use toward the administration, even when the statistics or the impersonal machinery of his investigation show at least a lamentable failure in the assessment to reach all classes of persons subject to the tax, is that the "technique of the assessment is still in its baby socks;" and even this, he is careful to tell us, is quoted from an essay by an officer of the treasury department, and thus has, in a measure, the endorsement of the administration itself (p. 5).

The study consists mainly in a close comparison of the results of the Austrian assessment for the income tax with that of Prussia. This method is possible and all the more profitable because the two taxes correspond very closely in principle, in form, and even in the graduation of the rates.

The rate of the Prussian income tax averaged, in 1898, 2.01 per cent. of all incomes assessed; in 1899, 2.02 per cent.; while the Austrian averaged 1.93 per cent. and 1.91 per cent. respectively in the same years. To that extent it would appear that the lower rate favored a fuller assessment in Austria than in Prussia. But the Prussian rate, it will be remembered, rises in broken progression, that is, the rate becomes nearly proportional at 3 per cent. for all incomes from 9,500 marks to 30,500 marks and strictly proportional at 4 per cent. for all incomes over 100,000 marks; while the Austrian rate is a regular degressive rate which approaches 5 per cent. as a limit. This makes the Austrian rate higher for the larger incomes than in Prussia, and to that extent militates against as complete an assessment in the higher grades.

If the wealth of Austria, or the tax-paying capacity (*Steuerkraft*), were the same as that of Prussia the income tax would have yielded 53,000,000 gulden (p. 22); it did yield only 23,000,000 gulden (p. 25). To explain this difference is the main purpose of the author. By reference to the relative proportions of city and rural population in Austria and the known lower tax-paying capacity of the rural districts, as shown by the experience of Prussia, the author reaches the conclusion that this total may reasonably be reduced to about 39,000,000

gulden (p. 25). This he maintains is the highest return that it is possible to obtain. But this is 16,000,000 gulden above the actual returns, and it is this difference which has to be accounted for by the weakness of the assessment.

Comparing the assessment of Vienna with that of Berlin, the author finds that the income tax-payers form a larger percentage of the total population in the latter in all but two grades (namely, those reaching together from 1,000 fl. to 3,600 fl.), and that the total number of tax-payers is 14.98 per cent. of the total population in Berlin as against 13.35 per cent. in Vienna (p. 34). Indeed, he finds that Vienna compares more closely with the Prussian cities of from 50,000 to 100,000 people (p. 37). The conclusion, reached after many fine adjustments, is that the assessment in Vienna is from 15 per cent. to 20 per cent. below the truth. Still he takes the opportunity to congratulate the administration on the "*schöne Erfolg*" of the second assessment of so intricate a tax in that city (p. 41).

When he comes to the smaller cities he finds the assessment far less satisfactory. Only 8.31 per cent. of the population are on the rolls, as against 10.57 per cent. even in the "poverty stricken cities of East Prussia," and 16.36 per cent. in those of West Prussia (p. 53). But worse still are the conditions which are revealed in the rural districts. There he finds that the rural districts of East Prussia show three times as large a proportion of tax-payers, three and a half times as much taxable income per capita, and nearly four and a half times as much taxes paid per capita as in rural Austria. That is, taking the assessment in East Prussia — the poorest district, as represented by the returns of the income tax — as the lowest *niveau* to which the assessment in the rural districts of Austria should rise, he finds that not more than one-third of the taxable citizens made any return (p. 67). Stated in another form, every resident of Vienna paid as much toward the income tax as thirty-six countrymen in Austria, while a resident of Berlin paid only as much as seven countrymen in Prussia (p. 27). Many other comparisons, equally instructive, are worked out in great detail, and the conclusion seems irresistible that the assessment was very faulty outside of the great cities.

The essay closes with an estimate of the proper returns to be expected in each of the different sections of the empire and from the different classes, and with a vigorous plea for an improved assessment in the future. He is still hopeful that the introduction of the income tax

can be made to work a substantial reform in the Austrian tax system, and to afford relief from other taxes which are more burdensome.

In spite of the whirl of the statistical machinery, which occasionally distracts the reader's attention from the main line of thought, the essay is very interesting, and contains much information that will appeal to the general student of economic conditions, as well as to the student of taxation.

CARL C. PLEHN.

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*The Anthracite Coal Industry: A Study of the Economic Conditions and Relations of the Co-operative Forces in the Development of the Anthracite Coal Industry of Pennsylvania.* By PETER ROBERTS, (With an Introduction by W. G. SUMMER.) New York: The Macmillan Company, 1901. 8vo, pp. xiii + 261.

A FIELD of economic history but little cultivated as yet, but one which promises as fruitful results as are likely to be realized on the historical side of economics, lies in the study of the development of the more important industries of the country. Such a study one would expect to disclose in concrete form the operation of economic forces, show the stages of development through which the industry has passed, the relation of the industry in hand to general industrial development, and such a picture of present conditions and tendencies as would make possible some generalizations as to the future.

The volume before us, dealing with an industry which from the beginning has been full of interest because of the many problems of industrial organization it has presented, and because of the picturesque way in which it has frequently met them, only partially meets these expectations. The author, it is true, disclaims the purpose of dealing with all phases of his subject, and has reserved for a second volume (to appear in the near future) the treatment of the "social and moral conditions prevailing" in the region. We may assume, therefore, that he has completed his study of the economic side of the industry, and with this in mind one may well express disappointment with the book.

The first two chapters deal with the deposits and the methods employed in developing the coal beds. Nowhere can be found so clear

and interesting an account of these subjects as is here presented. The third and fourth chapters deal respectively with "Capitalization" and "Transportation." Here one would expect to find centered the chief interest of the book from the purely economic point of view, but it is just here that the book is the weakest. Under "Capitalization" are discussed "capital's transforming power," "appreciation of coal land," "estimate of capital goods," "the cost of production" (the best part of the chapter), and "distribution of productive wealth;" but there is no hint that there is, or ever has been, any question as to over-capitalization or of the bearing of this question on the development of the industry or on the career of the companies engaged in it. The object of the chapter on "Transportation" (pages 61-82) "is to trace the development of these means of transportation and to show their relation to the anthracite coal industry." Whether one seeks to learn of the development of particular roads or the means of transportation leading to the various markets, one is sure to leave the chapter unsatisfied; and of the two characteristic features of the industry which are inseparably connected with the subject of transportation, viz.: (1) the union of carrying and mining privileges in the same company, and (2) the various pooling arrangements of the carriers, the one is barely mentioned and the other receives but a scant half-dozen pages. As an economic study that shall lead to an understanding of the large lines of development of the industry this seems a grave defect. The other chapters of a distinctively economic character, on "Employees and Wages" and "Reclaiming the Waste," are far more satisfactory.

Turning to those chapters which deal with the social rather than the economic aspects of the industry, we find the most valuable part of the book. The author's evident familiarity with present conditions, gained from long residence in the anthracite region, makes his study of mine inspection, labor organizations, accidents, etc., of the greatest value. One must go far, indeed, to find a more painstaking and appreciative presentation of industrial conditions than is here given. The cause of unionism is firmly upheld and the urgent need of organization is argued, but the author does not hesitate to condemn the practices and spirit often exhibited by the union. Sympathy for the workingmen does not blind him to their faults or deter him from denouncing them. One merit of the book, which shows itself particularly in this part, should be mentioned. The author is not a student

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of science for the sake of science, but for the sake of men. He is not content with pointing out the fact of the existence of evils, but goes beyond to seek the remedy for them. Hence his urging with great moral earnestness "facts which labor ought to know;" hence also his insistence upon "possible improvements by the syndicate." Freed but recently, it seems, from the "spell of utopian socialism," he defends with the zeal of a convert and the vigor of one who uses new weapons, the captain of industry and capitalistic production. Consolidated control, he thinks, will lead to stricter discipline in the mines, and this will result in a great saving of life and property; it will introduce improved methods of production and secure better administration, avoiding the waste of duplication and competition; and it may be expected that certain abuses hitherto practiced by individual operators will be reformed—such as those connected with the "pluck me" store and the sale of supplies; while enlightened self-interest should lead to the adoption of a system of settling labor disputes less disastrous than strikes. The duty of the "syndicate" to take more than a cash interest in a community from which so much wealth is derived by it is urged with great force. The author is less concerned with the sins of commission, with which consumers of coal charge the trust, than with the sins of omission which have left everything yet to be done for the physical, moral, and intellectual uplifting of large masses of population in the community. "There are," he says, "pathological symptoms of moral degeneracy in anthracite communities which demand strong and vigorous remedies, and the means to apply the remedies should be supplied by the persons who reap large dividends from anthracite mining."

The book has an index and numerous excellent maps and charts, but no bibliography. The only indication of the authorities used is found in the running references in the texts, and these are not frequent. The study is far from strong on its historical and economic sides; the arrangement of material is often crude; and the author frequently fails to see the forest for the trees. Nevertheless it is a valuable contribution to industrial history on account of the excellent description it gives of the social conditions in an important industry.

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1. *Die Arbeiterschutzgesetzgebung in den europäischen Ländern.* By DR. J. H. VAN ZANTEN. Jena: Verlag von Gustav Fischer, 1902. 8vo, pp. xii + 338.
2. *Protokoll über die am 27. und 28. Juni 1901 abgehaltene Konferenz betreffend die Ausgestaltung der Arbeitsvermittlungstatistik.* Wien: Alfred Hölder, k. und k. Hof-und Universitäts-Buchhändler, 1901. 8vo, pp. 135.
3. *Die moderne Arbeiterbewegung in England.* By WILLIAM SANDERS. Frankfurt a. M.: Verlagsinstitut für Socialwissenschaften, Dr. Eduard Schnapper, 1901. 8vo, pp. 32.
4. *Report of the Chief Labour Correspondent on the Strikes and Lockouts of 1900.* Published by the Labour Department of the British Board of Trade, 1901. 8vo, pp. xciii + 120.
5. *Second Abstract of Foreign Labour Statistics.* Published by the Labour Department of the British Board of Trade, 1901. 8vo, pp. xi + 325.

THIS group of publications is one of the many reminders of the important place which the labor problem occupies in modern civilization and of the scientific attention which is being given to the subject. Of the European countries little Holland is one of the last to feel the need of coping with this problem, and to the better understanding of it Dr. van Zanten, who is assistant in the city bureau of statistics and secretary of the building trades' labor bureau in Amsterdam, has made the latest scientific contribution. The volume which bears his name is a German translation from the Dutch of the first part of an essay on the subject, "The Regulation of the Labor Contract in Different Countries and How it Should Be Regulated in Holland," which the author has been preparing for a prize offered by the "Society of the Province of Utrecht for the Promotion of Art and Science." This first part has already received honorable mention, and the author has been thereby induced to publish it without waiting to complete the essay. The present volume, as the title indicates, treats of European conditions exclusively; and the immediate object of the work is to present a comparative study of the labor laws of the continental countries which will serve as a guide both to those who are entrusted with the enactment of labor legislation and to those who, as employers and employees,

are intimately concerned with present labor regulations. The volume is well planned for that purpose, a chapter being devoted to each of the leading countries considered, and in each case similar subjects being treated in the same order. Thus each chapter discusses, naturally and in the order given, the following topics: persons who may not enter into a contract; persons who may enter into a contract; the terms of a labor contract relative to the length of the work-day, wages, care of the employer for the health and life of the employee, other mutual duties of the parties to the contract; time length and termination of the contract; apprenticeship; the settlement of disputes; the enforcement of labor laws and contract stipulations. In general, the author discusses such protective legislation as is meant to offset the disadvantages which the employee in relation to his employer suffers in modern industry. In addition to the eight chapters which deal with these topics there is by way of introduction an excellent historical sketch of protective legislation in the nineteenth century, and the volume closes with a general comparative summary. Another excellent feature of the book is the classified arrangement at the beginning of each chapter of the specific labor laws of the particular country under discussion and a general bibliography of the other material used. Every page discloses that thoroughness of detailed research for which continental scholars are so well known; and while Dr. van Zanten seems to have had in mind at first the preparation of a work to meet the special needs of his own country, he has turned out a volume that will be of value wherever the labor problem is seriously studied.

Another phase of the labor problem which is receiving more scientific attention in Europe than it has heretofore been given, is reflected in the conference of the officials from the various Austrian labor bureaus and agencies which was held in Vienna last year, a good account of which is given in the above-mentioned *Protokoll*. The purpose of the conference was to discuss the adoption of uniform methods of keeping labor statistics in the various institutions that have to do with that subject, and to bring such institutions into closer relationship with the bureau of labor statistics recently established in connection with the Austrian ministry of commerce. When this bureau of labor statistics was created, in 1898, it was directed, in the prosecution of its work, to seek the co-operation of the state and communal authorities, the board of trade, the workingmen's accident insurance institutions, the trade unions and other workingmen's institutions; and these various

bodies were directed to render the bureau all necessary assistance. To this end the central bureau called a conference of representatives of these bodies in 1899 and discussed with them in a tentative way the subjects considered more fully in the recent conference. Prior to this time there had been no uniform plan of registering labor statistics in those various institutions, the chief function of which is to find employment for persons out of work; and some of them had kept no records at all. Thus, while the guilds were required by the Industrial Code to keep a register of workmen members who were out of work, and of employers in need of workmen, it was found as a result of an inquiry some years ago that out of the forty-two guilds in Vienna thirty-one had kept registers, but that only eleven were able to give statistics on the work done. On the other hand, the Association for Labor Registration (*Verein für Arbeitsvermittlung*), founded in Vienna in 1885, whose special aim is to assist work-people who are not members of the guilds in finding work, has kept excellent statistical records, as have many if not most of the various other 2,800 labor agencies in the state. But there have been almost as many different methods of registration as there have been agencies; hence the present movement for uniform methods and for co-operation and closer association with the central bureau. The conference seems to have been well attended considering the newness of the movement, some sixty representatives from the leading organizations and agencies being present, and among them the minister of the interior. Dr. Victor Mataja, director of the new bureau of labor statistics, presided. The deliberations of the conference had chiefly to do with four things: (1) principles which should guide in the uniform registration and preparation of statistics for monthly reports; (2) plans for preparing uniform annual reports; (3) methods of registering the unemployed who while in search of employment receive help at the workmen's relief stations (*naturalverpflegstationen*); (4) a uniform system of registering vocations and trades. Action was taken on these points and appropriate schedules for each class of statistics were adopted, so that the monthly and annual reports from the various organizations would correspond in form with those of the central bureau. It was also recommended that the various employment agencies throughout the state constitute themselves intelligence offices for those having workmen's dwellings or workshops to rent and those desiring to rent such dwellings or shops, as is done in a number of the industrial centers of Germany.



*Die moderne Arbeiterbewegung in England* is the title of an address given by Mr. Sanders in Frankfort on the Main before the German Society for Ethical Culture. Mr. Sanders is Secretary of the Battersea Labour League, London, a member of the Fabian Society, and a lecturer on social reforms. The address is of interest as giving one the point of view of a labor leader with strong socialistic leanings. The author confines himself to a discussion of the efforts of the socialistic class of the English workingmen during the last decade to establish an independent political party. This movement he identifies with the so-called "new unionism" which began with the attempts to organize the unskilled laborers during the '80's, and which received its greatest impulse from the successful organization and strike of the London dock laborers in 1889. The successful attempts at organizing the unskilled workmen gave trade unionism a decided impetus throughout Great Britain, and a feeling of solidarity among all the working classes was aroused, with the socialistic element in the lead. Out of this feeling of solidarity grew the "Independent Labour Party," a name, by the way, which was adopted by the socialists so as not to antagonize the more conservative elements in the old trade unions. Mr. Sanders describes the active campaigns which soon followed to secure a purely labor representation in Parliament and the progress which was made in securing representation in local government boards such as the London School Board and the London County Council. As a result of such representation, these local boards, as the author points out, have brought about, in many instances, a number of innovations, such as providing dwellings for the working classes, establishing "fair wages" for laborers engaged by the local governments, and requiring all employers doing work for the local government to meet the same standards. All such results—some of which are certainly doubtful gains—the author regards as marks of great progress. Judging from the experience of the last ten years Mr. Sanders concludes that as a political organization the Independent Labour Party is not likely to be able to do more than at times to hold the balance of power, and that ultimately it will identify itself with the extreme left of the Liberal Party; and that conclusion is undoubtedly sound. Moreover, as regards the further progress of the party in local government affairs, while he considers the innovations referred to above as marks of progress, he admits the fact that where the socialists have secured complete or nearly complete control they have not exercised it for the

good of the whole community but solely in the interest of their own class. Thus in the common council of West Ham some four years ago the socialists secured a majority. They forthwith had workingmen's houses built, founded schools of technology, provided city workshops, and realized, so far as the legal restrictions would allow, every socialistic ambition. But the town soon came to grief. In consequence of the fact that these public institutions were to be established and that the workmen were to be engaged directly by the city without the intervention of private employers and under conditions that were highly favorable to the workingmen, the number of employees on the town pay-roll greatly increased. These employees were citizens of the place and their political and trade organizations controlled the majority of the town administration, who no longer represented the citizens as a whole, but worked simply to secure the interests of the socialist class. These selfish interests were pushed so far that the whole public service of West Ham was soon disorganized, its treasury emptied, and a debt incurred which is still an almost insupportable burden for the taxpayers. Because of such disastrous experiments Mr. Sanders concludes that before much further progress can be made by the socialists they must be educated ethically. In that conclusion also he is undoubtedly right; and it may be added that when the different classes of society are so transformed in character that none of them will be guilty of such selfish errors as those referred to there will be little need for a program like that of the Independent Labour Party.

*The Report of the Chief Labour Correspondent on Strikes and Lockouts* is the thirteenth annual report on the subject published by the British Board of Trade. It contains an account of each dispute for the year 1900, with detailed statements as to the locality, the number of establishments involved, the number and occupation of those thrown out of employment, the cause of the dispute, the duration of the same, and the result. The work of the boards of conciliation and arbitration and the agreements reached in settling disputes also received attention. The number of strikes and lockouts in 1900 was less than for any one of the four previous years—the period covered by the comparative table given. The number of men involved and the amount of time lost, however, were greater than in the year preceding, though not so great as in the years 1897 and 1898. As usual, most of the disputes were in regard to wages. Of the 648 which occurred during the year, 202 were settled favorably to the employees, 211 favorably to the em-

ployers, 221 were compromised, while 14 were not settled. The largest number of disputes was among the building trades; the largest number of men thrown out of employment, among the miners and quarrymen. Most of the differences were settled by negotiations between the parties directly concerned or by their representatives. Of the 648 disputes three-fourths were so arranged, and these embraced 82 per cent. of all the persons concerned. The number of disputes settled by arbitration or conciliation was somewhat less than in the previous years. It should be understood, however, that the settlement of actual strikes consumes but a small part of the time of the conciliation and arbitration agencies, most of it being given to preventing stoppages of work. Thus of all the disturbances over wages and hours of labor in 1900, 58 per cent. were settled by these or kindred agencies and strikes and lockouts prevented. The report contains complete statistical information on all the topics discussed and texts of certain agreements and awards terminating disputes.

*The Second Abstract of Foreign Labour Statistics* is a continuation of a similar volume which was published in 1899. As stated in the introduction to the present number, "this series is intended to be supplementary to the statistical abstract for the principal and other foreign countries which has been compiled for many years in the commercial department, and also as companion volumes to the *Annual Abstract of Labour Statistics of the United Kingdom*." The first volume dealt with the four subjects of wages, hours of labor, trade disputes, and co-operation. In the present volume statistics on these subjects are continued, and in addition statistics are given on the subjects of conciliation and arbitration, trade unions, and workmen's insurance. The countries represented are Russia, Norway, Sweden, Denmark, Germany, Holland, Belgium, France, Switzerland, Italy, Austria-Hungary, the United States, and Japan. A reference list of the statistical tables which it contains and a good subject index make the *Abstract* a very useful volume.

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*Ninth Biennial Report of the Bureau of Labor Statistics for the State of Iowa, 1899-1900.* C. F. WENNERSTRUM, Commissioner. Des Moines: B. Murphy, State Printer, 1901.

THIS report of nearly 600 pages presents comparatively little information of economic value in addition to that found in the, rather

misleading, tables of manufacturing statistics of the Twelfth United States Census which are here reproduced. This seems due more to the limited appropriation at the disposal of the commissioner and the extent to which he is hampered as to his method of investigation, than to the evident inexperience of that official. The law establishing the bureau and prescribing the duties of the commissioner, besides directing him to obtain and report extended information regarding its industries makes him also an advertising agent of the state's resources, requiring that:

He shall by correspondence with interested parties in other parts of the United States, impart to them such information as may tend to induce the location of mechanical and producing plants within the state, together with such other information as shall tend to increase the productions and consequent employment of producers.

In addition to these duties, though the commissioner is given no power to make or enforce any regulation necessary for the health or safety of employees, he is also charged with the inspection of factories, workshops, and business houses of the state. He is to "examine into the methods of protection from danger to employes, and the sanitary conditions in and around such building and places, and to make a record thereof."

To accomplish all this the commissioner is allowed but one deputy and not a single clerk or stenographer and a limited amount for traveling expenses. The fact that there is no limitation as to the amount to be expended for printing may perhaps account for the space given to matters that would appear of minor importance.

The most important work of the bureau is declared by the commissioner to have been that of factory inspection. It is, as he says, "nothing less than astonishing that with such a very considerable population devoted to manufacturing, Iowa is among the very few states without statutory regulations and inspection of the employment of men, women, and children within the factories of the state.

One of the most important matters to which the commissioner calls attention as the result of his investigations is the large number of children employed in the factories of Iowa. He says:

Many of these children were as young as ten years. In many cases the children were employed at tasks that involved hard and laborious work. They were employed for the same number of hours as mature men, and were given no privileges or special exemption from work. I took special pains to

observe the physical condition of the children that I found working in the factories and they impressed me by their wan and overworked condition.

The commissioner quotes the United States census as showing an increase in the number of children under sixteen employed in the factories of the state as having increased from 1,644 in 1890 to 1,888 in 1900, and states that he is "strongly of the opinion that the returns are very much below the actual number so employed."

In this he is unquestionably right though he seems not to comprehend how the method of computing average numbers adopted at the last census tends to reduce the number of employes reported, as compared with the number reported in 1890, and especially of the number of children, a class largely employed in industries that give employment but a part of the year.

Commissioner Wennerstrum quotes with apparent confidence the tables of the United States manufacturing census for the state showing an increase in the number of establishments from 7,440 in 1890 to 14,819 in 1900 or over 99 per cent., and in the average number of wage-earners from 51,037 to 58,552, or 14 per cent., an apparent increase in the number of establishments of 7,515 and of wage-earners of but 7,379, and seems not to doubt the correctness of the figures; as a matter of fact the increase in the number of establishments is due largely to the inadequate enumeration of 1890, when there was reported in some industries which show a great increase in 1900 particularly those located in the rural districts, a much smaller number of establishments in 1890 than in 1880. The enormous increase in the number of establishments in 1900 is largely due to a more thorough enumeration, which more thorough enumeration should show also a large increase in the number of wage-earners. That it fails to do so is manifestly due to the radical change in the census method of estimating average numbers. With an increase of 40.5 per cent. in the urban population it is absurd to suppose that the number employed in industries principally located in the cities has increased but 14 per cent. and less than the rate of increase in population of the state.

Unfortunately the Iowa Commissioner of Labor is so hampered by a statutory form of investigation, as well as by lack of means, that his report of the number of wage-earners and their earnings is of even less value than the statistics of the census.

Stating his objection to the statutory blank by which he is required to obtain information the commissioner says :

First it applies only to persons or corporations employing five or more people. The returns under the blank consequently afford us only partial information as to manufacturing establishments of the state. The second objection is it includes many establishments not factories and industrial establishments proper; as, for example, hotels and restaurants that may employ five or more people; third, there is a general objection to limiting the bureau to a prescribed and unchangeable blank. No other departments of labor so far as our knowledge goes are so restricted.

Employers of five or more wage-earners in establishments of every kind are required by law to make return to the bureau on this prescribed blank and to make oath to the same.

Returns were obtained for but 1,428 establishments for the calendar year 1899 and 1,285 for 1900 which is less than one tenth as many for all industries as was obtained by the census for manufacturing industry alone. This would seem to indicate that but a small proportion of the establishments of this state employ so many as five wage-earners or that there was an extensive failure to make returns, though probably it is due in a measure to both causes. Though agriculture is by far the most important industry of the state we find it represented in this report by but three farming establishments, a florist establishment, three nurseries and one poultry raising establishment. Of the farming establishments one is a truck farm combined with a produce and commission business having sixteen employes and the others are farming and stock raising establishments in Sac county employing together 160 males and 22 females in 1899, and 185 males and 2 females in 1900 which paid in wages \$32,494 and \$42,431 for each year respectively, this includes board. These establishments are reported as in operation 40 full and 10 short weeks in 1899, and 37 full and 15 short weeks in 1900. These figures seem of considerable value as indicating the earnings in the most important industry of the state. Average earnings for all industries obtained by dividing the total wages reported for all industries would have no value whatever, for the number of employes, includes those of banking, insurance, real estate and mercantile establishments together with street car, telegraph, telephone, and messenger service employes and other classes of wage-earners nor is any such average presented, neither is there any attempt at classification except as reported by counties. A very complete report of railroad employment and salaries for the state is given from data obtained from the railroad-commissioner's reports and the wage schedules of the different railroad shops.

This report also presents information obtained from wage-earners themselves in reply to thirty-nine questions as to employment, income, expense, insurance, and savings and the conditions under which they work together with their opinions as to needed legislation. Replies were obtained from so few (268) that the results of this investigation seems of less value than that attached to it by the commissioner.

In this report we find also the results of an investigation as to trades unions of the state, the information having been mostly obtained through the secretaries of such organizations.

The commissioner declares that "statements are frequently made that associations of wage-earners as conducted now, tend to drag down the more skilled to a common level, and that trades unions are a hindrance to a skillful workman hindering him from securing the proportionate increase of remuneration due to such skill or ability." As disproving this and emphatically establishing the advisability of adhering to the minimum wage principle he presents statistics showing minimum and maximum rates of wages for each craft in different localities. As no data are furnished of the numbers receiving the minimum and maximum rates of wages it is difficult to see how the commissioner's tables prove anything whatever. That a single workman in each union who might perhaps be a foreman received a higher rate of wages than the rate established by the union certainly has no significance.

Strikes in Iowa since 1894; co-operative and profit sharing; and manual training are other subjects of investigation of this report. From replies received from county and city superintendents of schools throughout the state as to what measures have been taken to establish manual training in their schools, it appears that but very little is being done in this direction. Part second of this report presents a monograph by Mrs. Bertha Horack Shambaugh, of Iowa City, entitled "Some of the Economic and Industrial Phases of the Amana Society or Community of True Inspiration," the investigation having been undertaken at the commissioner's suggestion and urgent request. Following Mrs. Shambaugh's study is a paper on free employment offices in the United States by Miss Kate B. Miller, of Indianola, and a short sketch of the Icorian colony (now extinct) in Adams county. There is also in part second, a monograph on "The Influence and Value of Labor Statistics," by the commissioner of labor, in which he very highly praises the work of the various labor bureaus; also an article by the

same author on "The Workings of the Department of Labor," revised from an article in the *Cosmopolitan Magazine*; a paper on "The Kindergarten as an Educational Force," by Professor Francis E. Cook, of St. Louis, and another paper on "Manual Training vs. Trade Schools" by Dr. Calvin M. Woodward, also of St. Louis. These latter papers were read before a convention of officials of bureaus of labor statistics at St. Louis in 1901.

H. L. BLISS.

*The French Revolution and Modern French Socialism: A Comparative Study of the Principles of the French Revolution and the Doctrines of Modern French Socialism.* By JESSICA PEIXOTTO. New York: T. Y. Crowell & Co., 1901. 12mo, pp. viii + 409.

A VERY interesting parallelism between many of the principles underlying the French Revolution and the doctrines of modern French socialism has led Dr. Jessica Peixotto to make a comparative study in which she analyses both principles and doctrine.

Though the difference between the thesis of natural rights at the close of the eighteenth century and the science of economics at the close of the nineteenth evidence the great difference in the two movements, the issues have been essentially political, and the point of similarity at least in the introductory period has been a common dissatisfaction with existing conditions.

In historical exposition Dr. Peixotto is exceedingly definite, and in the use of documentary evidence very accurate. Her references prove a wide knowledge of the literature of the subject, and in correlating what has already been done in the field of theory her work is invaluable. However, at the very outset she tacitly disclaims the importance of an historical method which has been largely accepted by recent writers upon the French Revolution and upon that even more interesting period preceding it. She almost entirely eliminates the influences of economic and social conditions from her discussion and as a consequence, one must lay aside the theory that the uncertain structure of the revolution was reared upon a basis of social and economic injustice, if one is to follow her into the realm of "pure ideas" where she searches for the great causes of the revolution.

An analysis of any epoch in the intellectual life of a given society [she says] seems clearly to show two kinds of agencies at work during the process



of development — the one, a series of cultural influences reshaping the fundamental of men's thoughts; the other, certain social facts which make way among the masses for the new thoughts which have previously been developed.

In her analysis, however, the cultural influences take precedence of the social, and indeed exclude them in her present work. Whether ideas do give birth to social conditions or spring from them, the interaction cannot be disregarded without seriously weakening the argument for or against the supremacy of certain of the ideas discussed.

Granting that what Dr. Peixotto has emphasized as causes were, in reality, conditions from which she desires to take her point of departure, it is very interesting to note the order in which they are placed: first comes the rise of contempt and even active revolt in the time of Louis XV.; then the vacillating policy of Louis XVI. and the foreign influences and the part played by the salons, cafés, and propagandist centers of Paris. To sum up in a word — though that may be a little unjust to the author — the causes of the French Revolution, or the causes which led to the enunciation of the principles underlying it, lie in the political and social decay of the period.

These statements can hardly satisfy the student of causes, and it is certainly necessary to ask Dr. Peixotto to explain, if possible, the reasons of the decay. There is a hint of such an explanation when she says the lack of employment roused the lower classes to the pitch of open discontent.

In dealing with the principles themselves the author brings out very clearly the nature of their expression in the fundamental conceptions of man, nature and the social contract; and she discusses in detail the rights of man and the relation of the state and the individual. This discussion leads very naturally to an introductory chapter on modern socialism, which is the most vital part of the book. The international character of the movement necessitates a tracing of the German as well as the more idealistic school of French socialism and thereby throws light upon the conditions common to both countries. Some of the general statements are well worthy of citation, for instance:

A pessimistic view of the present is the first essential to the making of a socialist, but this alone will not suffice. . . . To be a socialist a second characteristic is equally essential. Along with a pessimistic attitude in regard to the present there must go an unquenchable hopefulness in regard

to some better future to be realized here on earth. Such hopefulness seems to have been a special privilege of our time. It has been well said that the main trend of thought in our age has been the conscious pursuit of social well-being.

Dr. Peixotto's interpretation of the Marxist position may be questioned, and her statement that "any organized experiment, based upon conscious social service, will depend for its success upon the stage of development reached by that fundamental and decisive factor, the individual," is almost a truism, but it leads the reader back to the starting point in the circle by bringing up the question: "How is the individual to be developed, and where do the cultural influences have their beginning if not in the environment which is, in turn, conditioned by the economic status of society?" Upon that status the author has not touched, and for that reason her analysis falls short of the demands made upon it by interested students of the French Revolution and French socialism.

CHARLOTTE TELLER.

*Histoire du Socialisme Française.* Par PAUL LOUIS. Paris: La Revue Blanche, 1901. 12mo, pp. vii + 313.

"THE history of French socialism, which is not to be confounded with the history of the working people in France," is in reality a study of the rise of the distinct proletariat class and of the political and social vicissitudes of its existence since the French Revolution. "The formation of what is called, rightly or wrongly, the Fourth Estate is only one aspect of the problem" which Paul Louis, the French writer, has set for his task in his latest book.

The serfs of the old régime had to wait centuries and centuries before having a program, and even then the program was from outside. The slaves of the ancient societies never played a distinct rôle, either in Athens, Sparta, or Rome. That which distinguishes the proletariat from all the oppressed classes which preceded it, and were freed before it, is that it professes theories so decided that no one, through irony, has declared them dogmas. In this respect, by the clearness of its demands, it even prevailed over the bourgeois parliament before 1789. The historian has, as his mission, to search for the origin of these principles, study their growth during the century, and their relation to the economic *milieu* from which they have evolved.

M. Louis maintains that most of the modern socialistic ideas, whether communistic or collectivistic, have had their origin in France.

Germany, he says, has only given them their final form and furnished the dialectic, as it were. The author takes for granted that the program of social democracy is known to the readers, and each chapter is concerned with some historical phase of the evolution of modern socialism : property rights and the eighteenth century; Babeuf and the revolution of 1789; the precursors (Saint Simon and Fourier); the first proletariat insurrection (1830-40); from Louis Blanc to Proudhon; the social uprising of 1848; the commune (1871); and then, the time from the commune to the crisis (1871-98).

The Paris commune crowned the socialist movement of the Second Empire, as did the June insurrection the great struggle from 1840-48; but there is no comparison in these two "gigantic attempts" of the proletariat. The first was broken up on the field by all the other allied social forces; the second held Paris for seventy days, established a government, and disposed of an army. Like the revolution of 1789, the commune was not altogether egoistic, whereas, in 1848 the chances of death were embraced rather than death by slow starvation. The comparison that Louis makes between the two is exceptionally valuable in bringing out the development of certain modern principles.

Since 1871 there have been other clashes than those between the Marxists and the idealists, but there has never been any real break until very recently, because neither one of any two antagonistic organizations had taken any initiative in absolute disaccord with the fundamental principles. The case of Millerand brought about a crisis, for it practically divided the movement into two factions. Up to that crisis there were two distinct phases in the history of the proletariat after 1871—one educational and collectivistic; the other, a readjustment, as it were, to the rapid industrial and economic changes which helped to crystallize the doctrines and principles. Both of these phases are carefully examined by Paul Louis, and made to explain the internal conflicts which have kept arising during the whole period. Industrial and economic confusion, but in the midst of the chaos, the proletariat rose like a stable pivot.

With the elections of 1898, the author closes his analysis, and points to the great importance of the last four years in the history. Millerand in the Waldeck, Rousseau cabinet, and the Dreyfus affair, are the two most significant events; the question of their influence upon French socialism is as yet unanswered. It is quite certain that the origin of the movement, now so great, is to be found "on the eve of

the revolution, beyond the tremendous cyclone of ideas, which overturned all the conditions of old France." And in pointing out this origin, the author makes plain the troubled path of the historians who have neglected to ascribe the growth of the new movement to economic soil and industrial storms, but have searched for it in the hothouses of intellectual discontent.

C. T.

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*L'Evolution du Socialisme.* By JEAN BOURDEAU. Paris: Félix Alcan, 1901. 12mo, pp. 330.

M. BOURDEAU'S presentation of the evolution of socialism does not lose in value to the general reader because he includes in it more than socialistic theories and platforms. He devotes chaps. iv, vi and vii, more than a third of the whole volume, to respectively "Municipal Socialism," "Strikes and Labor Unions," and "The Trades Union Movement in France." Many readers, both socialists and their opponents, will object to the label of socialism put upon such undertakings as municipal railways and housing, but the author justifies this treatment from the growing tendency among central authorities to interfere in what has hitherto been the field of individual enterprise. The author thinks that the peculiar nature of English municipal socialism is its unconfessedness, being entirely practical, and in the eyes of most Englishmen devoid of any theoretic socialism. In Germany, the land of state socialism, the social-democratic party is turning its energy to capture the municipalities. The growth of this form of socialism in France has been rapid. In 1896 socialistic councils were elected in eight or ten great cities. An interesting sketch of the operation of municipal socialism in the typical towns of Roubaix and Dijon is given. The former is an adjunct of Lille, and is a true Marxist city, with its great divergence of rich and poor and the absence of a middle class. Numerous "benefits" have been established, as crèches, baths, free meals for school children, etc., but the great difficulty encountered has been the high expenditures that these improvements have entailed. Taxes have increased, and the *octroi*, the most objectionable, has only in two cases been abolished by socialistic municipalities. Other criticisms upon the socialistic régime have been that its benefits tend to be confined to one class, that the clerical party especially has suffered, and that, as in all other parties, true interests are often sacrificed to political exigencies.

This chapter has been singled out for mention, not because the author confines his discussion to this phase of socialism, but because the French have been leaders in this activity. The early history of French socialism is outlined in the first chapter. The presentation in the second chapter of the theories and schools of contemporary socialism shows not only familiarity with the doctrines, but also an insight into the causes which made the movement. Here a phrase is coined that is worth remembering, *le socialisme instinctif*. "The majority of them, even among the leaders, are socialists from instinct. Socialism is to them a vigorous formula of discontent and revolt" (p. 49). "Socialism represents more or less faithfully the sentiment, the hopes of the laboring classes" (p. 52).

In this book the reader becomes acquainted with the men who have built up the party that has played such an important part in French politics during the past two years. The human interest has been well preserved and the vivid style holds the attention. And withal the author preserves throughout an unprejudiced attitude that neither advocates nor condemns.

S. G. L.

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*M. T. Cicerone e le sue idee sociali ed economiche.* By E. MASÈ-DARI.  
Torino: Fratelli Bocca, 1901. 8 vo, pp. 390.

MASÈ-DARI read Cicero in his youth. Later, as a student of finance, he renewed his knowledge of Cicero. From these later studies grew the present essay. He was shocked by Mommsen's drastic criticism of Cicero's career and stimulated to fresh exertions to understand his life and writings. He concedes that there are defects in the character of Cicero, and admires his works more than the man.

The essay is primarily critical; the attempt is made to sketch the motives and fundamental facts in the life of Cicero and correlate the qualities of his actions and his intellectual conceptions with the most important characteristics of his surroundings. The book, consisting of less than 400 pages, is divided into two nearly equal parts, the first of which discusses the social and political ideas of Cicero, while the second deals with his economic views. The subdivisions of Part I may be briefly summarized as follows: A survey of the moral, public, and intellectual character of Cicero; his comparative affluence; his theory of equality—division into classes, plutocracy, and the social

equilibrium; the social nature of religion; justice and legislation; demagoguery and communism. The subdivisions of Part II which deals with Cicero's economic ideas are the following: The relations of the state and private economy; public works and the appropriate functions of the state; finance and the state; customs and tribute; the tax-gatherers and their economic function; agrarian laws and agrarian policy; the economic concepts of Cicero—of utility, wealth, credit, etc.; labor free and slave—agriculture; credit, usury, and the money-lenders.

This brief survey of the topics considered shows the book to be what its title indicates, a summary of the social and economic ideas of Cicero. The word social is to be taken broadly; it embraces a treatment of Cicero's political concepts. The subdivision which is most characteristically social in its point of view is the fourth chapter (of Part I), which expounds the social origins and the social service of religion. Chapters three, five, and six (of Part I) are a fine summary of the fundamental political concepts of Cicero. Part II constitutes a fairly complete exposition of political economy in its main outlines. The book as a whole is a contribution to our knowledge of what Masè-Dari very correctly calls a neglected side, an almost unknown aspect of the mind and life of Cicero. It is to be regretted that in its Italian form it will not be generally accessible to English readers.

ISAAC A. LOOS.

STATE UNIVERSITY OF IOWA.

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*Storia della Crisi Economica in Puglia dal 1887 al 1897.* By SABINO FIORESE. Trani: V. Vecchi, 1900. 4to, pp. v + 168.

SINCE the founding of the united kingdom in Italy that country has been the scene of harassing and well-nigh continuous discords and misfortunes. The union of Italy did not imply that all patriotism for the local despotisms had been transferred to the new state. The central power has adopted oppressive police measures to stamp out this local particularism and so has frequently appeared in the rôle of a harsh repressor. The new political and administrative machinery is far from perfect and there has been a lack of great statesmen since the union. Nor can one look to the monarch for leadership. The constitutional limitations, while giving an extravagant income to the king,

for so poor a country, do not give him great powers, and recent Italian monarchs have not been men of strong personality. The power is in the hands of a nominated senate and an elected chamber of deputies. The average of ability and probity attained by the men of these bodies has been unsatisfactory. As legislators they have been mercurial and in many instances venal. The composition of the legislative chambers, furthermore, reveals the unfortunate struggle which the modern state has to maintain with the clerical party which is blocking progress and dreaming the dream of temporal sovereignty for the church.

The external political relations of Italy have been scarcely less satisfactory. Induced to take part in a triple alliance in which she has not as much to gain as have Germany or Austria, she has been lifted by these political affiliations into the rank of a first rate power, where she does not belong, and has been stimulated to maintain a large army and costly navy. Over one third of the expenses of state are on account of national defense. The same policy has led to unprofitable colonial adventure.

The economic life of Italy is not without much evidence of vitality and here and there achievements which promise well for the future. Within recent years great progress has been made in manufactures and the exportation of manufactured articles has increased. Silk is the most important manufacture, but home-produced cottons have nearly driven the foreign goods from the market. There are a few model iron, steel and machine-making plants and a number of firms manufacturing motors, dynamos and electrical equipments. In the land of Volta and Galvani the magnificent water-powers are at length being utilized for the production of electric power. In banking Italy has distinguished herself through a system of co-operative banks. The most perfect system of bookkeeping known is of recent Italian origin. The workmen of Italy are very extensively organized into associations by means of which they become direct bidders for the execution of both private and public contracts. Economic science has received notable contributions, both in the domain of pure theory and economic history. The monograph at present under review, forming as it does a portion of the second volume of a work entitled *La Terra di Bari*, is evidence of the thoroughly scholarly economic literature of Italy which is devoted to the improvement of the country's industrial practice and public policy.

Nevertheless, the American traveler, who is a business man or an

economist, cannot avoid contrasting the vigor and industrial progress of Germany with the lack of enterprise and organization evinced in Italy. One cannot help seeing that the country is overtaxed and that it is burdened by shiftlessly managed country estates and church endowments and a large class of able-bodied men in orders who ought to be in shirt sleeves. There is an evident neglect of internal improvements. The railway service is inadequate and too expensive for the industrial community. In a rugged country, stretching through a variety of plant zones and where great skill is therefore required in the handling of water and soil and in the choice of cultures, there is neglect of agricultural schools. For a country obliged to employ foreign managers and skilled workmen there is a lack of manual and industrial training.

The book is an essay in the recent industrial history of Italy. It is an elaborate and sympathetic study of the effects of the protective policy upon Apulia, a province in the extreme southeastern part of Italy. The recent tariff policy of Italy, we may say by way of introduction, has undergone several changes. The policy of Cavour was for free trade. This prevailed until 1878. With the increase of American competition the wheat growers of northern and central Italy began to demand protection. This was given in mild form in 1878. As manufacturing began in a small way here and there a new argument for protection was raised. This policy also appealed to the professional politician as a system permitting of constant alteration and profitable connection between the promoter or speculator and himself. A high protective tariff was established in 1887. This tariff, shutting out French manufactures, coupled with strained political relations, was responsible for the fact that the French treaty which expired in 1888 was not renewed. In its stead a tariff war was inaugurated between Italy and France which endured until 1891. In 1892 Italy improved, in some slight degree, her position by tariff treaties with Germany, Austria, and Switzerland. Finally a French treaty was again made in 1899.

The work of Dr. Fiorese gives evidence of the sharply contrasted interests of north and south Italy. The tariff which benefited the north, with its wheat raising and manufactures, harmed the south by cutting off the sole market for its wine and oil—namely, France. Prior to 1887 Apulia was in a prosperous though transitional condition. Intensive agriculture with small holdings supported some commerce



and shipping. The commercial expansion of Italy and American grain, together with the opening of French markets to Italian products, caused a gradual elimination of grain culture from Apulian agriculture. In the place of grain was planted the vine. This transition was made easy by liberal advances of money from capitalists and ultimately from the banks formed after 1875. These credits were granted frequently on the security of the future income of vineyards. By 1887 the great industry of Apulia had become wine production, and its single market was France. This industry was profitable, the peasants accumulated savings, and prosperity was general. Scarcely was this transition to wine production completed, however, when the tariff of 1887 was enacted and at once created difficulties. It lessened the export to France, produced local distrust, and caused a sharp rise in discounts. Local associations set themselves to study how the surplus of wine might be disposed of. It was proposed that the revenue tax on alcohol be removed so that wine could be used for its manufacture. Meanwhile the government continued with the new policy heedless of the sufferings of the south. The tariff of 1887 was put in force, and the south saw the day of her ruin approaching as the date of the expiration of the French treaty approached. This date brought a complete local crisis. Wages, which had been 3 lire, fell to 70 and 80 centimes per day. The exportation of wine to France, from Bari, which in 1887 had been 814,669 hectoliters valued at 24,400,000 lire, was in 1888, 192,936 hectoliters valued at 4,000,000 lire, and by 1891 it had almost ceased. To add to the confusion the two largest banks of the region, the Banca Provinciale and Banco dei signori Diana, failed in 1889. The actual physical misery of the people was intense. This stimulated in them a hatred of the Italian government which had sacrificed them to favor the north. The state did not increase its popularity by resorting to stringent measures of repression and continuing the burdensome internal direct and indirect taxes. The treaties finally concluded with Germany, Austria, and Switzerland were of advantage to the Italian manufacturers, but of little consequence to the wine and oil producers of the south. Our author closes by saying that the remedy for the disasters of Apulia has not yet been found. It may be added that the new treaty with France has failed to stimulate the industries of the district.

One cannot help feeling at the conclusion of this recital of industrial distress that the encouragement of diversified industry is the wise

policy for the future—at least so long as the tariff policy of Italy is the football of political factions and their unstable alliances. The south of Italy is suitable for a very wide range of crops from wheat and corn to cotton, wine, olives, figs, and almonds, and citrus fruits. Agricultural experiment stations and industrial training schools would seem to be most necessary to insure a wise choice of enterprises, and teach the most approved methods. If state initiative is not sufficient local agricultural associations and chambers of commerce can well afford to unite for their support. The wine industry of Italy has always been unduly helpless in its dependence upon France. Italian wines are sent to France to be there mixed with light thin French wines and resold in the markets of the world at high prices as French product. The Italians can now afford to pay special attention to the manufacture and blending of wines, and push the sale of their products, under their own labels, directly with the consuming countries.

EDWARD D. JONES.

*The Early Trading Companies of New France. A Contribution to the History of Commerce and Discovery in North America.* By H. P. BIGGAR. Toronto: University of Toronto, 1901. Large 8vo, pp. xii + 308.

It is a pleasure to pick up a book like this. It is beautifully bound, and when it is opened it behaves as if it were intended to stay open, while the clear printing and wide margins leave the ideas standing out in relief.

The text is an expansion of a thesis presented to the University of Oxford in supplication for the degree of bachelor of letters, and traces "the birth and growth of trade and commerce down to the year 1632 in that portion of North America subsequently called New France." The appendix, which makes up nearly one-half the book, is concerned with the sources, with estimates of their worth. A twelve-page index and a map of New France complete the volume.

The relation of how New France rose from the fisheries off New Foundland to something like the dignity of a colony, with the rigors of the climate, the perils of the wilderness, and unsettled conditions in the home country all against it, is exceedingly interesting. Fish and

furs were the commodities sought. Efforts to get them, particularly the furs, took various forms; individuals and companies, especially those which were given monopolies, engaged in the trade. The conditions seemed to demand permanent trading posts which could be maintained only by strong companies. But no company could afford to keep up a "factory" which would furnish facilities to its competitors. Hence exclusive privileges were granted, with conditions, particularly the sending out of colonists, which were too onerous to be fulfilled. After a company had gone on a few years without doing the impossible—that is, to a corporation, the unprofitable—the charter would be revoked. This became the regular program. By these successive trading companies the early political and commercial affairs of New France were largely dominated.

In 1604-5 the French had to face a tariff problem similar to that in the insular cases recently decided by the supreme court. Furs were brought into France, and an attempt was made to collect duties at the rates levied on goods coming from a foreign country. It was decided that they should pay only the duties which were collected on goods passing from one province to another. The new territory had been occupied by the king's authority, and hence was a dependency of France. There seemed to be no economic influence demanding the exercise of judicial acumen to the extent of showing that a part and a parcel of the country are two distinct things. It is not so difficult, then, to account for the decision, nor is it an indication of lack of mental keenness.

For the development of the country much was due to men like Samuel Champlain, whose energy and ability were a match for the difficulties. The greatness of some of them is perhaps less remarkable than the worthlessness of others, and the struggle with inefficiency was as hard as that against physical conditions.

In the conclusion, it is pointed out that the French have never cared to leave their native land, due, perhaps, at this time to the treatment of those who did venture to settle in the colony. They were severely and arbitrarily governed—which amounts to about the same thing as John Fiske's point, lack of self-government; a natural result with a strong centralized government at home. "Between the two evils of no colonists and excessive governmental control, New France during these years never prospered."

The reader is rarely left in ignorance of the sources of the matter in the text. The notes and references are full — all but excessive. If he can keep his eyes from the foot of the page he will find a good deal of satisfaction in reading the details of the struggles during this time of pioneering.

C. C. A.

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*A Comparative Study of the Administration of City Finances in the United States, with Special Reference to the Budget.* By FREDERICK R. CLOW. (Publications of the American Economic Association. Third series, Vol. II, No. 4.) New York: The Macmillan Company, 1901. 8vo, pp. vi+148.

DURING the last few years several important studies in municipal finance have been published. With a few exceptions, these were histories of the finances of single cities. Aside from the statistical tables compiled and published by the department of labor, Professor Clow's monograph is the first comparative study of any considerable scope in American municipal finance.

Mr. Clow has investigated only one section of the field. The nature and the making of the budget, the methods of controlling expenditures after the budget is made, and the methods of accounting and making reports from the body of the book. An introductory chapter sets forth the nature and functions of city government, while a final chapter notes some of the sources available for the study of local finance. The book also contains a list of documents used as "sources of information," and a list of books which have been useful to the author in this investigation.

Even were it desirable, a summary of the materials presented in this monograph could not be made here. The author has collected data from 102 cities by consulting their published reports, by corresponding with public officials, and by visiting about one-fourth of the 102 municipalities. The data are not as full at some points as one would wish, or as they could have been made, had further use of the large public libraries been possible. Though a few errors have been noted, the work seems to be fairly accurate in details. But an occasional paucity of data and an occasional misstatement of fact in such a study are not of great consequence. Its purpose is to present a view of the situation as a whole, and to bring out the typical

and the more common variations with their explanations, rather than to show what holds true in specific instances. This the author has done well.

H. A. MILLIS.

*City Government in Canada.—Westmount: a Municipal Illustration.—Municipal Government in Toronto.—Bibliography.* By S. MORLEY WICKETT. (University of Toronto Studies: History and Economics. Vol. II, No. 1.) Toronto: The University Library, 1902. 8vo, pp. 64.

TO GIVE a general idea of city government in Canada, or serve as an introduction to its further study, this pamphlet is all that could be desired. It consists of the four separate papers named above; the one on Westmount is by the mayor of that city; the other three are by Dr. Wickett.

The author and editor has made his work doubly interesting to those of us who live in the United States by his knowledge of our own cities and the constant comparisons he makes between them and the cities of Canada. In the most important features Canadians have followed English precedents rather than ours. They have not attracted many foreigners, and the population is almost purely British except for the French in Quebec; the suffrage is restricted; party lines are rarely observed in municipal affairs; officers are appointed without fixed terms, and serve during good behavior. On the other hand, similarity to our conditions is shown in the small amount of administrative control exercised over the cities by the province, in the frequent interference of the provincial legislature with city affairs and of the city aldermen with executive work.

The problem of dealing with local monopolies exists in Canada as everywhere else. Public ownership is rare. Franchises are usually granted for short terms, though in Toronto the gas company has a perpetual franchise. Westmount gives one instance of wholesome public control; the city has a fine library building, the cost of which was defrayed out of the deposit forfeited by a projected gas company.

It is of interest to find that part of a city's revenue in Canada is derived from an income tax. Montreal also levies a business tax based on the rental of the premises occupied, on the plan of the French

*impôt de patente*; efforts have been made to introduce this tax in Toronto. Westmount supplies its needs liberally, with rates of taxation only one-third as high as those in Montreal. Toronto has in part followed the New York plan of financial administration by establishing a board of control with sole power to prepare the annual budget; a two-thirds vote of the council is required to overrule this board. A similar concentration of responsibility has been brought about in Montreal by the creation of a finance committee in the council; a three-fourths vote of the council is required to change the action of the committee.

These papers show that city government is reasonably successful in Canada. "But it will not do," says Dr. Wickett, "for Canadians to boast. They are not yet out of the wood."

F. R. CLOW.

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*Industrial Democracy.* By SYDNEY AND BEATRICE WEBB. New Edition. London: Longmans, Green & Co., 1902. 8vo. pp. xi + 929.

It is unnecessary here to say anything in commendation of Mr. and Mrs. Webb's great book. Its merits and services are too well known to economic students to call for renewed discussion. The present edition differs from the earlier one in that it is in a cheaper form—the two volumes of the first edition being here reprinted as one—and in the addition of an "Introduction to the Edition of 1902." No change is made in the body of the text, but the discussion brought up to date (December, 1901), by the Introduction. "During the four years which have elapsed since its publication, the trade union world has not appreciably changed in structure or function." The record for these later years (given in a similar introduction to the 1902 edition of the author's *History of Trade Unionism*) shows that the notable changes have been a large increase in membership and in funds. This increase has come, chiefly, to trades which were already in a strong position ten years ago, while the trades previously organized but in a slight degree, and trades comprising low-grade workmen have gained relatively little; while in some trades, as the clothing trades, the agricultural laborers, and the dockers, the unions have even lost ground. The total membership of British trade unions now probably exceeds two millions (1,905,116 in 1900, as against 1,502,358

in 1892.) The number of strikes, as well as the aggregate number of workmen affected by strikes, have, on the whole, also fallen off during the same period.

The greatest change recorded in the position of the unions is that effected by a series of decisions of the judges, particularly that of the House of Lords (July, 1901) imposing corporate liability upon the unions for the acts of their agents. As a result of these decisions, the unions are now in a notably more precarious position before the law than they have been during the past quarter of a century.

# THE JOURNAL OF POLITICAL ECONOMY

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*SEPTEMBER—1902*

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## COMMERCE AND TARIFFS IN THE PHILIPPINES.

THE battle of Manila Bay marked the beginning of a revolution in the commerce of the Philippines. The news of the American occupation of the islands seems to have incited merchants in all parts in the world to lade their vessels with cargoes for Manila. During the last decade of Spanish rule the total exports and imports together averaged about 50 million dollars (Mexican) per annum. In the best year they were 60 millions. In each of the first three years of American rule they were respectively 80, 109, and 120 millions, exclusive of importations for the use of the military establishment. This increase came during the continuance of war and in spite of its ravages. But this marked growth is not the only evidence of a commercial revolution. Trade has changed its direction as well as increased in volume. By discriminating tariff-rates and severe restrictions Spain forced the islanders to import a large part of their wares in Spanish ships and to buy of and sell to Spanish merchants. Fully one-third of the insular trade was with Spain. Nearly all of this has now been diverted to other nations.

The explanation of this revolution is to be found only in the confidence of foreign merchants in the integrity of our govern-



ment and in the expectation of a more regular, just, and liberal administration of commercial law. For it took place largely before there was any prospect of an immediate close of the war, before the wounds industry had suffered were healed, before our civil government had been extended to the provinces and municipalities, before our new tariff policy was declared, and before the influence of our new schools upon native industry could be felt. Moreover, it cannot be attributed to the touch of American energy, for American capital and industrial leadership had not yet been introduced in the islands.

For a clear understanding of the tariff which was recently enacted for the islands by the United States Philippine Commission, it will not be amiss to review, briefly, the history of Philippine commerce and to note the main features of the old Spanish tariff. The story of the ancient commerce of the islands from 1573 to about 1812 is full of interest and of romance, to which we can make but a passing reference. The adventures of the stately royal galleons which plied between Manila and Acapulco, their hair-breadth escapes, or thrilling captures by the bold buccaneers who lay in wait for them off the coasts of California, or at the entrance to the straits of San Bernardino on the other side of the Pacific, would form a story full of incident and interest, but one which would not be altogether pertinent to our present purpose.

It is perhaps a trite observation that the discovery of the Philippines and their final occupation by Spain accomplished the purpose of Columbus's voyage by giving to Europe a new, though long and tedious, route to the Orient. Manila, the first outpost to be held by European traders in the Orient, had peculiar advantages of location. On the one side were the Spice Islands, on the other India and China. Her very situation made her a natural emporium for the most precious wares then known to commerce. With the same energy which had just given Spain an empire beyond the seas the Spaniard set himself to exploit the advantages which this location afforded for trade. To a certain extent he found the ground ready prepared and the

Chinese, who had prepared it, became his willing agents and co-workers. For centuries prior to the coming of the Spaniard the Chinese had frequented the islands by way of trade. They sought there rice, cocoanuts, and palm oil, sugar, various fibers, fine straws and cane, dye-woods and lumber, as the staple products. But they also gathered up a number of the luxuries which were most highly prized in China. These came from the southern and southwestern islands of the group. They were: the succulent sea snails; *beche de mer*; edible birds-nests, white, translucent, gelatin-like in substance, and usually worth their weight in silver; also tortoise shell; pearls and mother-of-pearl. In exchange it is supposed that the Chinese brought the Filipinos cotton, grass linen, and other cloths, silk, and all sorts of manufactured wares, iron and iron implements, and household utensils.

The coming of the Spaniard changed the course of trade. The natives were forced to pay "tribute" or taxes to the crown of Spain. This tribute was paid in kind. Very considerable quantities of the staple products, especially of rice and palm oil were gathered into the government warehouses by the tax-collectors. There the officials bartered them for those wares which the Chinese brought to the islands, and especially for those which at that time were most highly prized in Europe. The clever Chinese soon learned what the newcomers sought. They brought them silk, fine woven fabrics of India and Persia, some gold and jewels, and above all, they scoured the seas for spices. The wares so obtained, representing the revenues of the government, were, once each year, shipped on the state galleon to Mexico, where they were sold on behalf of the crown to cover, in part at least, a regular contribution from the Mexican branch of the treasury of 250,000 Mexican dollars, for the support of the insular government. This was the main purpose for which the galleon sailed. But incidental to this, permission was granted to sundry adventurers, favorites of the king, prominent officials, members of the religious orders, and a few pensioners, to ship similar goods in the same manner. When the ship returned to

the islands she brought back, besides barrels upon barrels full of Mexican silver dollars, Spanish wines, and manufactures of Europe.

In bulk this ancient trade was never large, but, owing to the costliness of the wares exchanged, it was extremely profitable. One lonely ship each year, and that not a large one, plowing its way through a dreary waste of waters, scarcely accords with our modern idea of a large and lucrative trade. Occasionally the galleon found a dull market in Mexico, but usually the profit was from 100 to 400 per cent. For many years it was restricted by law to 100 per cent. But, small as was the body of goods exchanged, this traffic made, in one important respect, a deep and lasting impress upon the commerce of the world. It gave the Orient its present standard coin of trade, the dollar. For many years before the Mexican dollar began to invade the English colonies on the coast of North America, for two centuries before its counterpart became our national standard, that most interesting of all coins was being poured into the Orient through Manila in large quantities. As has been said, the regular shipments in coin, on the account of the government alone, amounted to \$250,000 each year. The returns on private shipments of goods swelled this considerably and in some years the galleon carried over as much as \$3,000,000. That an insular population, which as late as 1787 barely reached 900,000 Christian souls, could not absorb this vast amount of metal needs no demonstration. It simply flowed away in the regular course of trade, and hence it is that today China, Japan, the straits settlements, and practically all the "Far East," use the Mexican dollar, or a coin very similar to it, for the bulk of their trade.

From the very first the Spaniards levied a tariff upon this lucrative trade. Legaspi, the first governor, was but barely established in power before he opened the customhouse in 1573. This early tariff was not especially designed for the Philippines. It was the ancient "*almojarifazgo*," whose quaint Moorish name is so suggestive of its antiquity, which had been

imposed by the laws of the Indies upon all the territories to be discovered beyond the seas which were granted to Spain by the bull of pope Alexander VI. It is strikingly characteristic of the conservatism of the Spanish government that the tariff which was in force in the Philippine Islands at the time of the American occupation still embodied the main features of this hoary old tariff. These features were: first, that the classification of the imports was based upon their origin. Thus, goods of Chinese origin bore one rate, those of European origin another. Second, that goods of Spanish origin and goods which came in Spanish ships were favored by lower rates. The result of the combination of these two principles was that all goods were scheduled under four classes: (1) those of Spanish origin which came in Spanish bottoms, (2) those of Spanish origin, in foreign bottoms, (3) of foreign origin, in Spanish bottoms, and (4) of foreign origin, in foreign bottoms. Although the Spanish tariff passed through numerous revisions, and although the character of the trade of the islands underwent at least two fundamental changes, the first due to the loss of Manila's supremacy in the oriental trade after 1800, and to the abandonment of the Mexican connection; the second due to the opening of the Suez canal, yet these two principles were never abandoned. The resulting tariff was one which took the interests of the consumers and the equities of the distribution of the burden of taxation among the taxpayers but little into consideration. The main objects appear to have been to get the largest possible revenues and to conserve the interests of the Spanish merchants. The tariff so developed was one which discriminated in a marked way against the poor and in favor of the rich. For example, cotton cloth and rice, the poor native's dress and food, paid duties which averaged, in later years, about 26 per cent. and 19 per cent. respectively, while silks and prepared foods paid only 20 per cent. and 9 per cent. respectively, and the duty on champagne was only 17.7 cents per liter, and that on pianos was nominal.

The tariff included export duties, and the rates for these fell into three classes, according to the destination of the wares and

the flag under which they sailed. All goods exported paid a small duty, but some fifteen enumerated articles paid special rates. Although the rates of the import duties were expressed in the *ad valorem* form they were, in fact, specific. For all goods imported were valued according to a fixed table of official valuations which was seldom revised, and had no necessary connection with the true or market values.

As soon as possible after the surrender of Manila, the United States military government reopened the customhouse with military officers in charge and soldiers for assistants. In accordance with the general policy of restoring, so far as possible, the legal and economic conditions which had been disturbed by war, the government put the old Spanish tariff into effect. Many were the difficulties which confronted the officers placed in charge of the customhouse. Few of them had even a limited familiarity with tariff administration. The laws they were to administer were all new to them and not at all clear, for the true bearing of tariff laws can be known only in the light of experience. But the soldier tax-collectors struggled manfully with the situation, and after some months brought order out of chaos. The necessity for a thorough revision of the tariff was so apparent that it was early undertaken by the military authorities. But the labors of the board of officers appointed for this purpose were superseded by the United States Philippine Commission, which began a revision as soon as it arrived in Manila.

The principles which guided in this revision were simple and few. The working out of these principles, in the multitude of details which enter into a tariff, was tedious and difficult. The work was done with great care, and every effort was made to learn all the facts necessary to the formulation of a just and equitable system. The tariff, first carefully prepared by experts, was worked over in private session by the Commission, then discussed in public meetings for several weeks in Manila, and after being tentatively adopted, was forwarded to Washington for approval. There it was printed and submitted to the merchants of the United States for their criticism and suggestions. Then

it was returned, with some amendments, to the Commission, again published and discussed in public sessions in Manila, finally passed September 17, 1901, and went into effect November 15, 1901. Thus every interest had ample opportunity to be heard. The government of the islands being still under the war powers of the President, no action of Congress was necessary to give the tariff validity. But the re-enactment of this tariff by Congress, in the general bill approved March 8, 1902, will give this tariff validity whenever a state of peace is declared and the insular government passes from the war department.

The first consideration in the formation of the new tariff was revenue. Under Spanish rule, the tariff had yielded about one-third of the total revenues. But the reduction of the internal revenues due to the disordered condition of the country, and the rapid increase in the commerce of the islands after the battle of Manila Bay, changed these proportions so that, prior to the enactment of the new tariff, the customhouse was furnishing about seven-eighths of all the income. It appeared to be highly inexpedient, in the disturbed state of the country, to resort to heavy internal taxation, save possibly for local purposes. Some of the old sources of revenue used by the Spaniards, like the lottery, the monopolies, and the sale of indulgences, could not well be resorted to. The principal Spanish internal taxes, the poll tax and the income tax, were fair enough in principle, but needed a thorough revision as to rates, to bring them to their proper revenue-yielding capacity. To do this and to organize the administrative force for the collection of internal taxes will take much time, and can be done only when the islands are thoroughly pacified. For the present, therefore, the Commission is practically obliged to depend upon the customs revenue for the funds with which to carry out the necessary reforms of government, to make the much needed internal improvements, and to develop the resources of the islands. It was assumed that a reduction in the rates of the tariff in most instances, and a fairer redistribution of the burden in general, would stimulate trade and increase the revenues. The Spanish tariff imposed an

average burden slightly over 20 per cent., and it was determined that the new duties should not, save in exceptional instances, go below 10 per cent. nor exceed 15 per cent.

The second consideration was equality of taxation, by which is meant in this case, relatively low duties upon the commodities used by the poor and relatively high duties on those used by the rich. This, as has been stated, is exactly the reverse of the practice under the Spanish régime. Aside from these two guiding principles it was thought wise to afford incidental protection to a few of the weaker but more promising industries of the islands, and to foster, so far as it was possible in the classification merely, the introduction of American wares into the islands.

The duties imposed are almost entirely specific. The only important exceptions to this rule are precious stones, watches, and small water craft, all of which pay *ad valorem*. But a minimum *ad valorem* rate is fixed in connection with the specific rate in the case of certain classes the items in which vary largely in value.

To understand the effect of any tariff it is necessary to know something of the ordinary course of trade. This has changed materially since the days of romance, above referred to, when Manila was the great European emporium in the Orient for the precious wares of China, India, and the Spice Islands. Long years ago, Singapore, Hongkong, and Shanghai stole away Manila's supremacy in the oriental trade. The commerce of the Philippines now rests entirely upon the insular products. It is larger in bulk, and more beneficial to the masses of the people than of old, but less lucrative to the dealers. In ancient days it was found necessary to limit the profit to 100 per cent. Such a limit today would of course be a dead letter. But the foundations of trade are now more solid. It rests upon four great staples, hemp, tobacco, sugar, and copra, with great possibilities for two more, coffee and rubber. The advantages which the islands have in the production of these wares are so great that their hold on the markets can never be shaken. The

imports of the islands are extremely varied, but cotton cloth, in many varieties, and rice are the most important articles. The Filipinos do not raise all their own food and manufacture but little of their own clothing. Rice, the chief article of diet, used to be an article of export. But since the opening of the Suez canal the market for the great staples has been so much more available that the land could be put to better use than raising so unremunerative a crop as rice. Hence there is an ever increasing importation of rice, which comes mainly from French China, sailing generally from the port of Saigon. Cotton cloth, supplemented by the gauzy, native fabrics woven of hemp, forms the dress of the natives. A coarse, short staple, tree cotton is raised in considerable quantities in the islands but is not used for cloth; long staple cotton can and has been grown on the west coast of northern Luzon. The natives have much skill in spinning and weaving by hand, but it is hopeless for them to compete with the output of the English and German mills.

Some observers have been inclined to regret that the Philippines should become dependent on the outside world for food and clothing and many plans have been proposed for restoring to them their self-sufficiency. These plans will all prove futile, for the best interests of the islanders lie in other directions. The greatest advantage lies in the further development of the great staples for which there are such excellent and so secure markets. The average native can get more rice by way of trade for a day's labor on the sugar plantation or cleaning *abaca* than for many days in the muddy paddy fields, or more cotton cloth for the same labor than his whole family could make in a week.

Any reduction in the import price of these two commodities, rice and cotton cloth, will be a direct stimulus to insular industry and to the production of the great staples for export by reducing the cost of production. The necessity for revenue forbade the entire removal of the duties on cotton fabrics. The same consideration, as well as the fact that, owing to the force of custom in retaining prices at their old level, a large part of the benefit of any reduction in the duty on rice would for some time to



come accrue to the great rice-cleaning mills, determined the retention of the duty on rice. The new duty on rice, 40 cents per 100 kilos, is a trifle under 12 per cent. at last year's prices. It is as yet very difficult to determine how heavy the new duties on cotton cloth will prove to be, on account of the changes in the classification and the probable changes in the grades imported which will result. But it is safe to say that the average will not be far from 12 per cent. The rates on these two articles were the result of long deliberation. The experts who prepared the first draft recommended very low duties, especially so on rice. The Commission was at first inclined to favor a program embracing "free food and free clothing for the poor natives." But the fervor of their missionary zeal was in this instance overcome by the practical necessity for revenue. The final outcome is a rate which in each instance is probably at the point of highest returns ; or in other words is not high enough to restrict importation and not so low as to sacrifice any of the interests of the treasury. It has been estimated that the old duty on rice, including its effect on the price of home grown rice, cost the natives on the average \$1.80 per annum. On the same basis the new duty will cost him \$1 per annum. But as the tendency is for the insular production of rice to fall off and the importations to increase—a tendency which the reduction in the duty will directly foster—it may reasonably be anticipated that the revenue from this tax will increase in spite of the reduced rates.

Direct discrimination in favor of goods coming from the United States could not be made without giving the same advantage to Spain under the provisions of the treaty of Paris. That, in view of the advantage which Spain would enjoy through her old connections, would not be to foster the growth of American trade. But the tariff contains a number of arrangements which it is supposed will work to the advantage of our continental wares. The great reduction of the duties on flour, canned goods, preserved meats, and prepared foods is the most notable of these. The duties on cotton goods are levied by weight and vary with the fineness and closeness of the weave, or the number of threads

to the square inch. The schedules of rates are so arranged that the heavily clayed fabrics of Germany and England, although more open than our more honest cloths, will, on account of the greater weight with the clay, pay a higher duty per yard than those of ours with which they must directly compete. If American manufacturers will but take the pains to adapt their wares to the native tastes there is nothing to prevent our cottons from controlling the markets. The English and German traders in the islands have a saying that "nothing sells well among the natives save what is cheap and nasty." This is not strictly true. The germ of truth behind it is that the native has a decided taste for certain colors and combinations of colors and his expenditure for dress is limited. He wants gaudy colors and cannot pay high prices. But he appreciates durability and is smart enough to know the difference between clay and cotton thread.

The protective features of the tariff are not striking. It was hard to introduce very heavy protection in a tariff which ranges from 10 per cent. to 30 per cent. There are indeed, no manufactures proper in the islands that call for protection. The principal manufactures which exist are either in the preparation of the natural products for the market, as the manufacture of cigars, or the purely domestic industries, like the hand weaving in the households of the native fabrics, the sinamay, jusi, tinampipi and piña. But to encourage these latter industries, which seem to be of some promise, certain raw materials are admitted at low rates. This is true of cotton, cotton yarn, silk and other fibers. On the other hand the duties on loosely woven and other fabrics which might compete with the native fabrics are relatively high. The natives are cunning workers in gold and silver, so the tariff on jewelry is quite heavy, while the raw materials are either free or admitted at low rates. For the same reason the manufacture of rough clay hollow-ware is also slightly protected. A deliberate attempt to foster an infant industry is found in the case of soap. Large quantities of coconut oil and copra are exported to France where the oil is made

into fine toilet soaps. It was thought that this was an industry which might well engage native labor so the duty on soap of this variety was fixed at from 10 to 20 cents a kilo, and the export duty on copra was doubled.

The main purpose of the whole revision aside from obtaining larger revenues, was to afford a more equitable distribution of the burden. This was attained, so far as possible, by lower rates for the poor man's goods and higher rates for the rich man's wares. Thus pianos now pay from \$30 to \$100 each, and the duty on champagne was raised to 85 cents per liter. Other luxuries are taxed in like proportions. But after all, the necessity for revenue, which compelled the retention of the duties on food and clothing will throw the heavier burden on the poor man. For the \$1 per annum which he pays on his rice means more to him and cuts into his living more than does the 85 cents a liter levied on the champagne of the rich mestizo. This is an unfortunate result that could scarcely be avoided.

The new tariff has not been in force long enough to enable us to judge of its effect. The published reports for the first few months show a continuance of that gratifying increase in the commerce of the islands which set in immediately after the battle of Manila Bay. There is also a marked increase in the revenues. But it is, as yet, impossible to determine how far this increase may have been due to the holding back of shipments in anticipation of the decreased duties.

The special export duties on hemp, indigo, rice, sugar, copra and tobacco were retained, but the rates have been somewhat reduced. The export duty on rice will tend to keep the domestic rice in the islands and in so far to reduce its price to the consumers. The retention of these duties arises from the necessity for revenue. The effect on the production and sale of these great staples is scarcely appreciable, as their hold on the markets is too strong to be affected by these light duties.

The existence of a customhouse in each of the ports of the islands will tend to restrict the insular commerce to the exportation of the local products. With any tariff Manila can ill com-

pete with the great free ports of Hongkong and Singapore for that share of the collecting or depot trade of the Orient to which she seems entitled by virtue of her central location, with China and India on the one hand and the Spice Islands and Australia on the other. The question as to whether the tariff is a temporary expedient or a permanent measure has not been decided. The happiest solution of the whole problem for the people of the islands would be to make Manila a free port. With the solid basis afforded by the trade in the insular products she might then win back her old position as an emporium for all oriental wares and possibly outrival Hongkong and Singapore. With open ports the internal trade and prosperity of the islands would, after a few years, increase to such an extent that the necessary revenues could be raised by moderate internal taxes. We have thus far dealt broadly and liberally with our brothers of Malay origin and our every effort has been to interpret that May-day born relationship between us entirely in his favor. We have placed his well-being in the hands of a missionary board composed of gentlemen who are fully alive to our newly remembered duty to "teach all nations." The result, so far as commerce is concerned, has been that the encircling wall of tariff restrictions which now surrounds the Philippine Islands is probably as well calculated to benefit native industry and to promote insular well-being as any tariff which could be devised. It being granted that there must be a tariff this arrangement is far happier for these tropical islands than it would be for them to be enclosed in that tariff wall which we have erected to protect our states in the temperate zone. But if we can eventually give them free ports and thus establish a veritable open door to the Orient they will have additional reason to celebrate on each recurring May-day, the liberties which were heralded by Admiral Dewey's guns.

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## PRICES AND THE INTERNATIONAL MOVEMENT OF SPECIE.

I. THE quantity-theory of money has been long relied on in the received explanations of international trade and values. If compelled to reject this theory, are we obliged to restate the principles of international economics? While the quantity-theory is certainly incorrect, it does not follow, however, that the fundamental principles of international trade and values already accepted are unsound.

International exchange has often afforded a means, in other problems, of disentangling the true from the factitious, because in its very nature it cannot be influenced by local or territorial conditions. The elements of domestic and foreign trade are the same; and the word "international," after all, is only a name for conditions of trade with regions (even within the same country) between which there is no free movement of labor and capital.<sup>1</sup> Therefore, the process of price-making in the international field may throw into isolated clearness the agencies which are likely, also, to be true of price-making in domestic trade.

How are the prices of goods traded in, for instance, by England and the United States determined? If the quantity-theory has any universal validity as a general principle we should be obliged to apply it as follows: the quantity of money offered for goods is to be compared with the amount of transactions (rapidity of circulation both of money and of goods being allowed for). What, in this point of view, would be the quantity of money which could serve as a demand for the goods passing to and fro between England and America? Is it the quantity of money in England, or that in the United States? Or, is it the amount afloat which is carried back and forth? Of course, no such absurd method of determining prices in international trade has ever been, or could be, attempted. In the

<sup>1</sup> Cf. CAIRNES, *Leading Principles*, etc., p. 306.

international field, of all places, goods (in order to obtain their prices) are not compared with any vague quantity of a medium of exchange; inevitably the comparison is made between the particular goods and some accepted money-metal, like gold, in the weight of which the values of goods in different places and countries can be compared. The insufficiency of the quantity-theory, when applied to international trade, is too apparent to need statement; yet one may doubt if it is any more absurd to try to compare the mass of goods with the media of exchange in international trade in order to determine their prices, than it is to apply that method of price-making to goods and the media of exchange within a country. Indeed, it is seen by most writers that the relative values of goods between different countries are fixed by reciprocal demand, held in at opposite limits by expenses of production; a seller in one country will not sell below his necessary expenses of production, but he will sell for as much more as the reciprocal demand between foreign and domestic dealers will permit. The relative values of the goods being thus determined, what is the means of evaluation of these international goods in gold? That it is not by comparison with the international media of exchange, must be at once admitted; since it is almost universally acknowledged that exports pay for imports, and that it is a barter of goods against goods. In short, the general principles regulative of prices within a country are practically those which seem to be admitted to be in force in international price-making: given the world-value of gold (as determined by the world's demand and supply), goods are expressed in gold in proportion (cost of carriage apart) to their relative expenses of production, modified by fluctuations of demand and supply.

2. The quantity-theory, however, has been used in the study of international values in quite another form than that referred to above. In the historical development of thinking on international trade and the movement of the precious metals, it will be remembered that the usually accepted exposition in general

treatises of political economy, with only few exceptions, even to the present day, conforms to the principles laid down by Ricardo (and later expanded by Mill). The theory of foreign exchanges, and the movement of exports and imports, in Ricardo's system were intimately associated with the quantity-theory of money; hence its appearance in our latter-day thinking. In brief, the classical theory may be stated as follows:

Starting with the trade between England and the United States *in equilibrio*, so that the exports exactly pay for the imports, and so that each country has that part of the money-metal in the world which is in the proportion of its transactions to those of other countries, suppose a new export from England to the United States of nitrate (due to discovery). The imports of American goods into England will no longer pay for the exports to the United States; more bills of exchange on the United States are offered for sale in England, and the price of exchange goes to the shipping point, so that (provided the United States can sell England no additional merchandise, or securities, with which to pay for the new nitrate) specie is imported from the United States to England in an amount sufficient to pay for the new exports. This new supply of the money-metal, added to the circulation of England, would (according to the quantity-theory) raise the general level of prices in England. But the United States, or any other country buying the new nitrate, would have lost specie, lowered the quantity of her circulation, and consequently caused a fall in general prices at home. Hence, goods, which before would not have been exported from the United States, could now, at the lowered prices, be marketed in England, where all prices have risen. Likewise, high general prices in England will tend to check her exports to the United States (and to other countries). Thus forces are automatically set in motion, by the initial sending of specie, which will alter the relation of the amount of the exports and imports of England, until they again pay for each other. In the end, England has more specie than before, and other countries less; prices are slightly higher in England than before, and less in other countries.

3. Since it is our purpose to discuss the theory of prices, we must not be drawn off into any inquiry (no matter how tempting) into international values.

The immediate question is the effect of the addition to, or the subtraction of, specie upon the levels of prices in the trading countries. There are evident difficulties in using the classical theory whenever we try to explain modern conditions. In the first place, the action of the international markets, with telegraphic quotations from every part of the world, precludes the supposition that gold prices could in general remain on a higher level in one country than another (cost of carriage apart) even for a brief time. In the second place, one country is trading with many other countries; and even if that one received much gold, it would probably have come (even through some financial arbitrage center) from all the countries it traded with (in its new exports). Thus no fall of prices may take place in the importing countries, of such a nature that the international movement of goods is needed to again bring about equilibrium. In the third place, the theory seems to regard the local value of gold as causing a change of prices within a country, while the value of gold is an affair of a world-demand and a world-supply. In the fourth place granting a world-value of gold, in which the comparative prices of goods are expressed, the reason for exporting or importing certain goods depends upon internal conditions touching expenses of production within a country; that is, it is the relative expenses of production, and comparative prices, of goods within a country, and not the general level of prices, which causes international trade. To be sure, a fall of general prices might bring some new article so low that in comparison with some other, it might enter the international market. But, in any case, the change of price must be comparative, and not general; and it must usually be in reverse order to the comparative prices in other countries, so that the direct comparison between the price of a particular commodity desired for export must show an absolutely lower quotation (exceeding cost of carriage) than the same article in the country by which



it is imported.<sup>1</sup> Hence, the causes permitting a new export are individual and not general; are due to relative expenses of production or to changes in relative demand and supply, and not to a general change of prices; and they are really antecedent to any movement of specie. In the fifth place, it does not at all follow that the importation of the money-metal, which is used as the standard of prices in the importing country (the same which may have sent out the nitrate, or any new export) will pass into use as a medium of exchange, and, by being offered against goods, will raise general prices; and yet, according to the usual statement of the quantity-theory, this is the only way in which the imported specie can affect prices.

It is interesting to note that Mr. Nicholson, who, in his special discussions on money, has strongly supported the quantity-theory, is quite ready to throw it overboard in his treatment of international values. He finds it impossible to accept the clas-

<sup>1</sup> Mr. Nicholson has seen the truth that the readjustment of exports and imports is not produced by the operation of a general rise, or fall, of prices and shows the *reductio ad absurdum* in this passage of Mill: "It is no sufficient ground of apprehension to the English producers to find that some other country can sell cloth in foreign markets at some particular time a trifle cheaper than they can themselves afford to do in the *existing state of prices* in England. Suppose them to be temporarily unsold, and their exports diminished; the imports will exceed the exports, there will be a *new distribution of the precious metals, prices will fall*, and as all the money expenses of the English producers will be diminished, they will be able (if the case fall short of that stated in the preceding paragraph) again to compete with their rivals."—MILL B. III, chap. xxv, § 1. [The italics are Mr. Nicholson's.] That foreign cloth may for a time undersell English cloth, owing to various temporary conditions, every one will admit, and also that the English exporters may again recover their markets when these conditions have passed away; but to suppose that the recovery will take place by a general fall in the level of prices in England through the export of the precious metals in lieu of cloth is to mistake altogether the influence of general and special causes on prices. It is easy to bring the issue to a *reductio ad absurdum*. Suppose at the same time that the price of English cloth is above that of foreign cloth, the English and foreign prices of some other competing export, say linen, are exactly in the reverse position. In this case a balance will be due from England on account of the lessened export of cloth and to England on account of the lessened export of linen from foreign countries. As these debts will just cancel, no effect on general prices can take place, and the former condition of equilibrium could not be restored in the manner supposed.—NICHOLSON, *Principles of Political Economy*, Vol. II, p. 320.

sical explanation of the effect of imported, or exported, gold on prices :

It seems necessary, at any rate, to abandon the idea of a fall in general prices abroad ; for even supposing the new export is at first paid for in gold, the contraction of the world's currency would be relatively small compared with the increase in that of England.

But will general prices rise in England until some old exports become too dear ? This supposition seems similarly, if not equally extravagant ; for the gold sent on balance will find its way into the banking reserves, and, as Mill himself allows, will so far not affect prices directly.<sup>1</sup>

Again general prices in England cannot rise above the general level of gold prices in the commercial world — after allowing for *quasi*-permanent causes of difference. But on Mill's view a rise in English prices sufficient to check exports and to increase imports would apply to the range of both, and for the trade to continue this change in price must be considered permanent. . . .

The notion that a new export can be obtained continuously only by an operation on the general levels of prices of one country and the rest of the world is suggestive of the primeval simplicity in which roast pig can only be obtained by a continuous series of conflagrations.\*

4. Irrespective of any previous argument as to the soundness of the quantity-theory, sufficient reasons have been already mentioned to discredit its adequacy to explain the movement of exports and imports in international trade. No statistical evidence, in addition, can be adduced to show that prices are, or have been, raised or lowered by the importation or exportation of gold into or from a country. To say that prices in general will fall in the United States today if gold is exported—that imports will thereby be increased, and exports decreased—does not explain the facts of our exports and imports ; nor is the movement of gold governed by any such rules as has been indicated in the classical theory. The movement of general prices in the United States is, and has been, quite independent of the impor-

<sup>1</sup> Is not Mr. Nicholson at variance here with his beliefs elsewhere stated (*Monetary Problems*, pp. 73, 146) that prices are influenced through the quantity of bank reserves, because, as he says, credit "raises prices just as much as when ready money is offered" ?

\* NICHOLSON, *Political Economy*, Vol. II, pp. 288, 289.

tation or exportation of gold. Of course it may be said that gold forms only a part of our media of exchange; but that does not help the case of the quantity-theory; for if we have the gold standard, and if gold-prices are unaffected by changes in the media of exchange, what then has become of the theory?

The most casual examination of statistics will show that the exportation and importation of our standard money-metal has had no appreciable effect on the movement of exports and imports of goods. Indeed, one feels compelled to apologize for introducing any evidence on this point. In the case of our trade from 1872 to 1880, gold was not the standard, hence the export and import of gold as merchandise could have had no importance; nor do the changes in the volume of the "currency" seem to explain the fall of prices:

Year.	Volume of Circulation.	Excess of		Annual Index Number of Prices in Paper.	Excess of	
		Exports over Imports Gold.	Imports over Exports Gold.		Exports over Imports Mdse.	Imports over Exports Mdse.
1872.....	\$738.3	\$40.8	\$....	\$138.8	\$ ....	\$182.4
1873.....	751.8	36.1	....	137.5	....	119.6
1874.....	776.0	14.5	....	133.0	18.8	....
1875.....	754.1	53.2	....	127.6	....	19.5
1876.....	727.6	23.1	....	118.2	79.6	....
1877.....	722.3	.3	....	110.9	151.1	....
1878.....	729.1	....	4.1	101.3	257.8	....
1879.....	818.6	....	1.0	96.6	264.6	....
1880.....	973.3	....	77.1	106.9	167.6	....

But passing to a period in which there was a succession of imports of gold over exports, while gold was the actual standard (after January 1, 1879), it would be expected that the addition

Years.	Excess of Imports of Gold.	Exports of Merchandise.	Imports of Merchandise.	Prices.
1878.....	\$ 4.1	\$ 694.8	\$ 437.0	\$ 101.3
1879.....	1.0	710.4	445.7	96.6
1880.....	77.1	835.6	667.9	106.9
1881.....	97.5	902.3	642.6	105.7
1882.....	1.7	750.5	724.6	108.5
1883.....	6.1	823.8	723.1	106.0

of gold should have so raised prices in general that our exports should have diminished, and our imports increased. The revival of prosperity would alone on a sensible theory account for the imports; but instead of diminished exports there was an increase.

Taking another period in which there was a succession of exports of gold, one would expect to see, according to the classical theory, such a general fall of prices as should cause an increase of exports, and a diminution of imports, of merchandise. In fact, the exports of 1895 and 1896 are no greater than those of 1890 and 1891; while the imports have apparently not diminished. The panic of 1893 would alone account for the shrinkage of imports in 1894 and 1895.

Years.	Excess of Exports of Gold.	Exports of Merchandise.	Imports of Merchandise.	Prices. <sup>1</sup>
1889.....	\$ 49.6	\$ 742.4	\$ 745.1	\$ 94.2
1890.....	4.3	857.8	789.3	92.3
1891.....	68.1	884.5	844.9	92.2
1892.....	.4	1030.3	827.4	94.9
1893.....	87.5	847.6	866.4	94.9
1894.....	4.5	892.1	654.9	87.3
1895.....	30.1	807.5	731.9	85.2
1896.....	78.8	882.6	779.7	83.0

Such figures, however, are unsatisfactory, because there are many influences at work to affect the amount of our exports and imports of goods other than the international movement of gold. But, at least, they show that there is no response in the actual facts of the day to the attempt to apply the classical theory. There are, of course, very good reasons for this in the development of our resources, in the cheapening of our goods, the shipment of securities, the payment of ocean freights, the expenditure of travelers, and the items of the general financial account. Hence, no legitimate conclusion can be drawn from a table of merchandise movements alone.

5. Without further delay, it may now be permitted to pass to a statement of what seems, in my judgment, to be the true

<sup>1</sup> To 1891 from the Aldrich Report; after 1891 from Falkner's Table in the *Bulletin of the Department of Labor*, p. 263.

relation between prices and the international movement of gold.

The essential truth in international trade is the well recognized fact that imports are paid for by exports ; in this sphere, it is well understood that goods are exchanged against goods, and that the medium of exchange is merely a subsidiary agency devised for the convenience of the traders. In this respect, the character of international exchange does not differ from that of the great body of domestic transactions. In the case of the vast quantity of goods transferred by the deposit currency within a country, the essence of the operation is an exchange of goods against goods expressed in terms of gold by a medium of exchange which (under normal credit) has no influence upon the general prices of these goods ; in the case of a trade between foreign countries, the essence of the operation is an exchange of goods against goods, also expressed in terms of a given weight of gold, and the medium of exchange employed has likewise no influence upon the general prices of the goods. But in the latter case, as a necessary result of the nature of the trade, since it is carried on over considerable distances instead of within a given financial center, the medium of exchange employed is the bill of exchange, instead of the check and deposit system. Distance—or the conditions known as “international”—create a reason for the use of the bill of exchange, which differs in form and practical operation, but not in essence, from such a medium as a deposit-currency. Therefore, the influence of each on prices in two different fields of exchange is essentially the same.

In neither case is there any necessity for passing the actual standard metal as a medium of exchange in any one sale, or even for great masses of transactions. To an American house, its exports are credits, while the goods it imports are debits ; and to the great body of our people, our exports of goods are credits offset against our imports which are debits. Gold may be required only in settling balances ; but, as we shall see, not even the balances need be paid in gold. The same words might be used of goods bought and sold by the deposit-currency. In the field of foreign trade, it must, therefore, be evident to the most

superficial observer that the goods passing to and fro—or the money-work in—do not form a demand for all the “money” offered for the goods (after the way of the quantity theory); although supposedly paid for in each case by an order on “money,” the real payment for our exports is found in our imports. The money is not usually, or often, passed, even though each trader, on the face of things, sells or buys for “money,” and his goods are expressed in terms of “money.”

Through the use of bills of exchange it is not necessary that the international accounts should evenly balance at any given time; for a balance in favor of one house, or one country, may soon be changed into a balance in favor of the other. If A in London receives a cargo of wheat valued at \$10,000 from B in New York, later A may be sending to B machinery valued at \$12,000; then a balance of \$2,000 is due to A. But, meanwhile, B may have sent a cargo of raw cotton to A worth \$50,000; then the balance is reversed. In such a trade as this, specie is not sent back and forth for each shipment; the whole account is kept open and continued. The practical means of accomplishing this is by means of bills of exchange. For the first item, B has the right to draw on A for \$10,000 in London; but when he received the \$12,000 of machinery from A, B can assign to A the \$10,000 coming to him in London as part payment (thus owing only the balance of \$2,000). This assignment, when put into words, is a bill of exchange: it directs the buyer of the wheat (whoever he may be) to pay \$10,000 (or its equivalent in English gold) to A (or to any name, as the case may be), and charge it as an offset against B's debt to A. By this old and simple device, a part of the evolution by which the valuable standard metal has been saved from risk as a medium of exchange, gold is not sent across the Atlantic.<sup>1</sup>

Foreign trade is, of course, not carried on only between two persons in London and New York, nor only between the United States and England, but between a great number of houses in

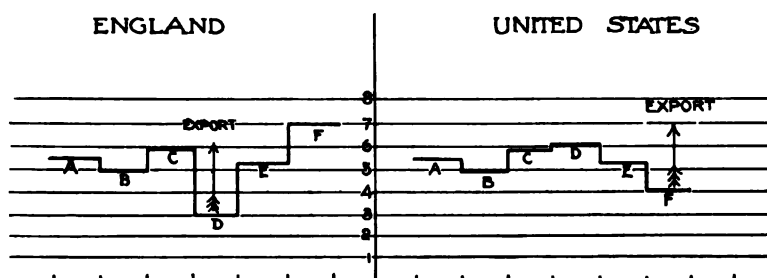
<sup>1</sup> Of course, the same general process obtains in settling accounts between cities within the same country, such as New York and Chicago, or New York and New Orleans.

the United States and houses in all parts of the world. The accounting, however, remains the same. The transactions of the many houses in London trading with the many in New York are all balanced against each other through the institutions that deal in bills of exchange. So, of all the trade between the United States and Great Britain; or between the United States and any other nation. Finally, through common financial centers, such as London, the claims of buyers and sellers of good repute in various nations are offset against each other. Therefore, so far as the merchandise account is concerned, it is evident that the existence of a balance is the consequence of the difference in the value of exports and imports; and since only the balances need, under any circumstances, be transmitted in gold, it becomes perfectly clear that the movement of gold is a result, not the cause, of the movement of goods in international trade. While this is but a simple statement of patent facts, it is to be observed that this is not the sequence of events set down in the quantity-theory, since that theory teaches that goods move after the change in the quantity of the circulation within a country has affected prices.

6. The movement of goods to and from a country, moreover, is due to influences affecting particular prices of goods, and not to those affecting general prices. In the subjoined diagram, on a scale of prices expressed in gold on the perpendicular line, let the broken lines indicate the general level of prices in England and the United States (leaving out cost of carriage for convenience). The commodities, A, B, C, and E have the same prices in both countries, and are therefore not traded in; but suppose that commodity D has for a time a price in gold of 3 in England (based on relative expenses of production to other English goods), while in the United States it bears a price in gold of 6 (having high expenses of production relatively to other American goods). Hence, commodity D will be exported to the United States. Similarly, in the United States, suppose commodity F

bears a price in gold of 4 (due to relatively less expenses of production than other American goods), while in England it bears a price of 7 (relatively to other English goods). Then, commodity F can be exported from the United States to England; and a trade can go on between the two countries in D and F.

If gold is sent at all, it is sent to pay for balances. The originating cause of the exports in both countries was a valuation in gold of goods relatively to each other (based in general on relative expenses of production, and demand and supply, within



each country). The cause of the international movement of goods was the difference in comparative costs as expressed in comparative prices (within each country); while the exact reverse was going on in the other of the two countries, so that a direct comparison of prices between the two countries allowed a profit on the trade. The shipment of gold, if any, was a consequence, not a cause, of the trade; and the prices giving rise to the trade were not due to the movement of the gold.

If a general fall of prices took place in England due to a change in the world's value of gold, they would fall similarly in the United States, and for the same reasons; relative prices in each country would remain exactly the same (unless the change, in some manner, altered relative expenses of production), and there would be no reason for any new exports or new imports.

Evidently, the classical theory counted on a change of all



prices in England in such a manner that the English level would be, for a time, higher or lower than the general level in the United States, and would, in this manner, occasion new exports, or new imports. This position, then, is based on the idea that gold can have a different value in one country than it has in another country; and that this difference is sufficient to cause a change in general prices. If prices in general fell one-half in England, and if they remained unchanged in the United States, there would be no profit in sending commodity B, for example, to America, if the return cargo was in goods (such as A).<sup>1</sup> Of course, if England will take no goods, but demands gold, England will gain the difference in price between the two countries.

In such a case, an enormous premium would exist on shipments only from England to the United States, and it would wholly stop all goods from leaving the United States for England. Such an extreme case shows how absurd it must be to reason on the supposition that gold prices can maintain a different level in different countries (cost of transportation and ordinary profit apart). The whole business world on both continents is always and actively at work to prevent any appreciable differences in the level of gold prices between commercial nations. A rise of price of any commodity due to local causes (such as deficient harvests, war, etc.) is instantly met by importations from other countries; indeed the actual event is more often discounted by shipments of goods.

A century or so ago, or even among existing nations having no rapid communication with commercial countries (if there are any such), perhaps prices might, unknown to traders, remain at different levels in different countries. In that case, if gold were also the sole medium of exchange, and if there were no free coinage, then possibly the level of prices might be raised or lowered in these detached and remote nations by the addition or subtraction of gold in international trade. But that would throw no light

<sup>1</sup> That is, 100 B formerly priced at 480, is now 240; and A is now one-half of 550, or 275. Carry 100 B to America where it sells for 480, and it would buy there only  $\frac{1}{2}$  of A, or about 85. Take this 85 back to England where it will be worth only 233.75, or less than 240, the price of the 100 B, which was exported.

on our problem of today. That money which is the standard is little used among us as the actual medium of exchange ; and in these days the movement of the standard metal from place to place, does not necessarily change its world value ; its going in or out of a country may not practically touch the usual media of exchange (other than gold) by which goods within any country are transferred. So that, if gold were to move from one country to another, it does not follow that prices would be affected ; certainly not, if prices must depend (as in the quantity-theory) on the quantity of the media of exchange.

Finally, it is not conceivable that a different level of gold prices (supposing such a thing possible) in two modern commercial countries would be brought to a common level by the movement of gold from the place of high to the place of low prices. Between trading countries, as between different parts of the same country, the exceedingly keen competition of merchants in the leading centers would send the goods themselves to the spot where high prices existed, and by a quick increase of the supply of goods they will reduce prices in the country whose level was artificially high. A situation in which it is found that only gold can be exported is almost inconceivable ; for prices would at once fall by competition of goods with goods to a normal international level (allowing for differences due to cost of carriage, etc.) and there would be no profit in sending gold. In fact, in any reasonable case, an analysis inevitably brings us back to the exchange of goods against goods as the normal condition of all trade.

7. Thus far the discussion of the movement of gold and its effect on prices has proceeded on the supposition that exports and imports consisted only of merchandise. In actual fact, there never is any equilibrium in any country between the exports and imports of goods. Goods are not the only things of value exported and imported, which are used as credits and debits in international accounting. Securities, private and public, are constantly being sent to and from the United States and Europe

in enormous sums. These securities form the basis of bills of exchange exactly as if goods were shipped. Hence a large excess of exports from the United States may be covered by an unknown shipment of securities from Europe to us; and, by the bills of exchange the claims are offset so that no gold may be sent either way. In this case again, the movement of gold depends upon the previous movement of goods and securities. It is not the transmission of gold which first starts the exports or imports either of goods or securities.

Besides securities, the sums due by Americans for freights, the amounts to be paid on travelers' letters of credit, are offsets against our exports in all forms; and if we lend to foreigners, or buy their securities, we may be drawing only against the credits due us from our exports of goods. All our exports of goods plus our exports of securities or any form of obligations due to us, on the one hand, are to be offset against all our imports of goods, plus our imports of securities, etc., before it can be ascertained whether a balance of gold is due to or from us; and even then, the actual balances may not be sent in gold. So that the effect of a movement of gold upon prices in these days is practically *nil*. In fact, it has become clear, by the logic of events, that the shipments of gold between commercial countries has little or nothing to do with the level of prices of merchandise in any country.

8. The reason why even balances in favor of a country may not be paid in gold is due to the possibility of investing those balances at a higher rate of interest in a foreign country than can be obtained at home. The relative rates of interest have an influence even wider than that upon the movement of balances. It is the rate of interest upon sound international securities, as well as the rate in the loan market, which determines whether credits due, for instance, to the United States shall be left abroad or brought home in the form of goods or specie. The general accounting in foreign trade must include the operations of loans, and the movement of capital for investment from one country

to another. Indeed, the rate of interest is behind the movement of securities mentioned above. The purchase of securities is, of course, one form of investing capital. Therefore, in determining the causes affecting prices and the movement of gold in international trade, it must be kept in mind that the relative rates of interest in the trading countries will influence the passage of loanable capital to and fro, thereby acting as a factor in adjusting merchandise credits and debits, and seriously affecting the transmission of gold. Instead of gold being the originating cause of new exports and imports, as once generally held, it is the very last thing to move; and even then merchandise balances may be entirely reversed by changes in the rates of interest in New York or London which will cause capital to flow from the creditor to the debtor country. The recognition of the force exerted by the rate of interest on the movement of loanable capital gives the final *coup de grace* to the old theory, which based its change of general prices upon the international movement of specie. The order of events is quite the other way: relative prices cause exports and imports of goods; and the shipment of gold is not made to cover balances of merchandise. If gold moves, it goes not merely because of the account in goods and securities, but of the investment of international capital. What Mr. Mill saw dimly in his day is now well understood.\*

In the seven years, 1894-1900, the total excess of our exports over imports of goods was \$2,391.7 millions;† and yet,

\* It is a fact now beginning to be recognized that the passage of the precious metals from country to country is determined much more than was formerly supposed by the state of the loan market in different countries, and much less by the state of prices.—B. III, chap. viii, § 4.

†

(00,000 omitted.)

	Total Exports, Merchandise.	Total Imports, Merchandise.	Excess of Exports over Imports, Merchandise.
1894.....	\$892.1	\$654.9	\$237.2
1895.....	807.5	731.9	75.6
1896.....	882.6	779.7	102.9
1897.....	1,050.9	764.7	286.3
1898.....	1,231.5	616.0	615.4
1899.....	1,227.0	697.2	529.8
1900.....	1,394.4	849.9	544.5
Total.....	\$7,486.0	\$5,094.3	\$2,391.7

in the first three years, we also exported \$113.4 millions of gold.<sup>\*</sup> In 1897-99 we imported \$200.9 millions of gold. We had sold goods and securities for which other countries must pay us; they had bought of us more goods than we had bought of them. We had the choice of realizing on our foreign credit either in goods, securities, or gold. The reason why some gold was shipped to us in 1897-99 was that at the prices set by foreigners on their goods and securities we did not care to purchase more than we did; and the balance was paid in gold. If foreigners had offered their securities (or American securities held by foreign investors) cheaper, that is, if they had been ready to pay a higher rate of interest, our investors might have bought more securities abroad. In this way it would have been decided by us to leave in Europe on interest balances due us, instead of asking for gold. On the other side, foreigners preferred to send us the gold rather than to pay the rates we exacted in bargaining for goods, or investments. Our excess of credits over debits allowed us to buy foreign goods, securities, or gold, according to our preferences; and we preferred gold. In other years we evidently chose differently.

The rate of interest at home and abroad, moreover, acts to regulate the flow of gold before it can appear to an excess in the reserves of banks. The imported gold first passes into the banks, we will say, of New York. The former proportion of

## EXCESS OF GOLD AND SILVER EXPORTS AND IMPORTS.

(00,000 omitted.)

	GOLD.		* SILVER.	TOTAL GOLD AND SILVER.	
	Exports.	Imports.	Exports.	Exports.	Imports.
1894 .....	\$4.5	.....	\$37.2	\$41.7	.....
1895 .....	30.1	.....	27.1	57.2	.....
1896 .....	78.8	.....	31.8	110.6	.....
1897 .....	.....	\$44.6	31.4	.....	\$13.2
1898 .....	.....	104.9	24.2	.....	80.7
1899 .....	.....	.....	25.6	.....	25.8
1900 .....	3.7	.....	21.4	25.1	.....
Total .....	\$117.1	\$200.4	\$198.7	\$234.6	\$119.7

\*No imports.

reserves to immediate liabilities is altered; and if the banks wish to make use of the new gold as reserves they must increase their loans, probably by lowering the rate of discount. On the other hand, in the foreign banks from which the gold came (say London) the efflux of gold may have raised their rate of interest, for exactly opposite reasons. If the London rate of interest rose, securities bearing a fixed rate of interest would, of course, tend to fall. In due course of time American investors would find that low rates of interest and high prices of securities in New York were contrasted with high rates of interest and low prices of securities in London. There would thus arise among Americans having foreign credits a tendency to increase loans, or buy securities, in London; and an equilibrium between credits and debits would be brought about without a further movement of gold.<sup>1</sup> In this fashion the banking and business public of the United States would discover how much gold was needed, and when that amount was reached, at any particular moment, the flow of gold to this country would cease automatically. By the same machinery another country, like England, might obtain an increased supply of gold when needed.

Between great financial centers, such as Paris, Berlin, London, and New York, a distribution of capital is constantly going on through the machinery provided by the loan market and the rate of interest, as already described.

Granting an agreement to transmit a large capital, does it go in the form of goods, securities or gold? The actual process

<sup>1</sup> After writing the above, I found the following statement in the financial correspondence from London (*New York Evening Post*, August 29, 1901):

As for America, it is now believed in London that the ordinary trade balances in your favor this autumn will be again very large.

But as to a heavy gold movement in your direction, there is a good deal of uncertainty. It must not be overlooked that the increasing aggressiveness of American capitalists in our industries points to the probability of increased floating balances held for your credit here. As between this influence and the actual credits on merchandise account, the New York money market may be the deciding influence. Therefore the course of your money rates is being watched more closely even than the monthly export balances. If money at New York remains at its present easy figures, it is the rather general belief that you will not take gold.

may be seen by the following illustrations: (A) Suppose the capital is to be moved from London to New York. If the merchandise account is such as to give an excess of claims on gold in New York to London; that is, if American imports have exceeded American exports, there is an urgent demand in New York for bills on London, the price of exchange has risen nearly to the gold exporting point;—then the capital going to New York for investment is sent by transferring to New York London's claims on gold in New York through bills of exchange. The operation is that of simply leaving in New York the gold which would otherwise have been shipped to London. (B) Again, suppose the capital is to be moved from New York to London. If the merchandise account is such as to give to New York an excess of claims on gold in London; that is, if American exports exceed the imports, in New York the supply of bills on London is large, exchange is low, or near the gold importing point;—then, New York transfers the capital to London through bills of exchange by simply leaving in London the gold it would otherwise have withdrawn. (C) If the capital were to be moved from London to New York, and if New York still had an excess of claims on London, as in the last case, London would be obliged to meet not only its trade debit but also that for the capital to be transmitted. This would probably be met by an exportation of gold from England to the United States over a considerable period of time, until the obligations were canceled.

The movement of capital, then, in the form of loans or securities, only adds a factor in the general financial account to those already there which are together working to decide whether gold shall be sent or not.

Gold, consequently, may be sent to cover a simple trade balance. Or, when capital moves, in obedience to the rate of interest, for investment, it affects the financial account (including credits and debits not only for goods, but for all financial operations), and gold will be sent according to the final outcome of the account. Gold does not move in any such way as to produce a general change of prices.

9. It may be said<sup>1</sup> that, instead of affecting prices through actually entering the circulation, an influx of gold, in the modern banking system, would affect prices through raising bank reserves, and expanding the purchasing power which is offered for goods. To this it may be replied that, in legitimate banking, loans are made because of satisfactory collateral or actual transfers of goods, and not merely because reserves are high. To be sure, if reserves rise more loans are possible and rates of interest will fall; but merely because a bank can loan, it does not follow that it does loan. Loans are the evidences of transactions in property and goods; and only enough reserves are kept to properly and economically transfer these goods and property, under the penalty that, if the bank errs in valuing the security, the bank loses. If gold is pouring in beyond the needs of banking safety, the banks get rid of it, just as of any other asset which does not pay a return. If not needed in the reserves, to which it first flows, it goes into the arts (when not wanted for coins). The imported gold first passes into the banks, and only as much as is needed for legitimate business is retained. Gold in excess of business needs, it must be remembered, is a non-interest-bearing asset.

The existing stock of gold (about \$9,000,000,000 or \$10,000,000,000, of which less than \$5,000,000,000 are used in the monetary system of the world) is now so large that no restrictions on legitimate bank discounts can be assigned to the world's scanty supply of gold for reserves. When the war in the Transvaal broke out in 1899, it was supposed by some that the supplies of gold for the reserves of European banks would be curtailed. Two years later the American reserves had increased by \$150,000,000; those of the Bank of England by \$18,000,-

<sup>1</sup> If a country finds its banking reserve getting low, it seeks to "correct" the exchanges by raising the rate of discount. This relative rise attracts gold directly and indirectly tends to lower prices by checking advances, and thus, so far stimulates exports and diminishes imports. It is, by its effects on the banking reserves, that the passage of gold from one country to another has its principal influence on foreign trade — and it is only considerable in exceptional circumstances. —NICHOLSON, *Political Economy*, Vol. II, p. 292.



000; the Bank of France by \$100,000,000; the Bank of Austria-Hungary by \$43,000,000. The Bank of Russia, for special reasons, alone had lost gold. This outcome was not surprising. The explanation is to be found in the vast supply of gold not employed in the known circulation of all countries (nor in the arts), and held by institutions, or financial houses, not obliged to make public reports of their holdings of gold.

10. The rate of interest, the quantity of bank reserves, the price of exchange, merely form the present-day machinery by which gold is distributed throughout the commercial world to each country in the proportion of its needs of all kinds (monetary and non-monetary). The movement of gold follows, and does not precede the events which determine the course of international trade;<sup>1</sup> and hence it does not, in fact, raise or lower general prices, so that new exports and imports appear to restore equilibrium.

This ebb and flow of gold from one country to another does not affect the fundamental forces regulating the prices of products. In all cases, gold prices can be changed only by changing the relative values of goods and gold. A change in prices from causes affecting gold itself can take place only through such events as may alter its value throughout the world (by changes in the world's supply of, or the world's demand for, gold). A mere rearrangement of the existing stock of gold by transfer from one place of storage to another, would not, unless accompanied by a greater total demand than before, be sufficient to change the world-value of gold. If no increased amount of gold is needed in the annual transfers of goods in international trade, the shifting back and forth in payment of balances would not raise its value; that would follow only from a totally larger demand for such trade uses, as compared with the world's supply. The arrival of a gold balance in any one commercial

<sup>1</sup> The amount of gold sent by way of balance depends on the excess of the exports over the imports, and thus follows, and does not determine, the course of trade.—NICHOLSON, *ibid.*, Vol. II, p. 292.

country no more lowers the world value of gold in the markets of that country than would the price of the existing supply of wheat be lowered if one of the places of storing wheat should be changed from Chicago to Buffalo; for, if the existing demand for wheat and the existing supply of wheat remain unchanged, it is only a matter of convenience where it is stored. If the quantity of gold in a country be increased, without changing its world demand and supply, it would not produce any effect on the value of gold; it would not affect the value of the standard in which prices are expressed, and hence it would not modify the general price-level in that country.

Moreover, as clearly proven by the experience of England and the United States, the media of exchange by which goods are actually transferred within a country demand little, if any, gold, except for banking reserves. The fact is, that the volume of the media of exchange necessarily increases as the transactions out of which they arise increase; and it is equally true that great variations in the volume of the media of exchange may take place without producing any perceptible effect on the quantity of the standard money-metal used in domestic, or foreign, trade. But, on the other hand, the process of valuing goods in terms of gold does not in itself require more of the standard-metal. Unless changes in the volume of the "circulation" in any one country are such as to produce an effect on the world's value of the metal in which prices in the great trading nations are expressed, it is inconceivable that the level of prices in any one country should be changed.<sup>1</sup>

12. It might be said, however, that there could be a temporary change in the value of gold in one country, due to violent trade convulsions, which did not extend to other countries; and that the value of gold would be different for a time in that country from its world value. If so, prices would be for a period

<sup>1</sup> The same general principles regulating the movement of gold and the level of prices between different countries apply equally to the movement of money and prices between different parts of the same country.

depressed, and gold would be imported to restore the equilibrium. Could there be a temporary scarcity of gold in one country? A case in point may be cited, in the history of the panic of 1893 in the United States, when there existed what was called a "money famine," and when gold was imported.

Such a situation would, even before the event, show itself in the rate of interest, and gold could be imported within a week. Granting the temporary scarcity of gold in such an emergency, the time could not be long enough before importation of gold to lower the general level of prices; it would be found usually that prices had fallen before the money-famine disclosed itself. This exceptionally high value set on gold was due to temporary business and banking conditions, and to the liquidation of obligations. In this case, the sudden demand for gold was disassociated from the movement of prices; the increased estimate put on gold in a panic could not have been the cause of a previous fall of prices.

To be sure, a fictitious rise of prices due to abnormal credit might temporarily give to gold a lower value within a country than it possessed elsewhere in the world; but these conditions bring their own overturn in such a vengeful fashion as to show that it is at variance with the natural principles of price-making. Such a rise of prices is not due to an increased quantity of the standard metal, but to the fiction of abnormal credit, or over-trading.

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## THE CIRCULATING MEDIUM DURING THE CIVIL WAR.<sup>1</sup>

### I.

#### GOLD AND SILVER COIN.

BEFORE the banks and the treasury suspended specie payments, December 30, 1861,<sup>2</sup> the monetary circulation of the United States consisted of (1) gold coin, (2) subsidiary silver coins for fractional parts of a dollar, (3) one cent pieces of a copper and nickel alloy, (4) treasury notes of the government payable on demand, and (5) circulating notes issued by banks chartered under state laws.<sup>3</sup> The specie in circulation was estimated by the director of the mint in October, 1861, at from 275 to 300 millions, of which he thought not more than 20 millions were at the South;<sup>4</sup> the demand notes outstanding were 33½ millions,<sup>5</sup> and the bank notes reported as issued by the 1,289 institutions in the loyal states amounted to about 129 millions.<sup>6</sup>

Suspension threw this whole system into disorder. Gold coin, the only full legal tender money in use, was withdrawn from general circulation as soon as the banks and the treasury ceased paying it out, and the country was left dependent upon a currency of paper money which the issuers were not prepared to redeem in specie.

<sup>1</sup> The following paper is a chapter from a monograph entitled "A History of the Greenbacks with Special Reference to the Economic Consequences of their Issue 1862-1865," which will appear in the *Decennial Publications of the University of Chicago*, second series.

<sup>2</sup> See "The Suspension of Specie Payments, December, 1861," JOURNAL OF POLITICAL ECONOMY, Vol. VII, pp. 289-326.

<sup>3</sup> Silver dollars had not been in common use for many years, because they were worth more as bullion than as money. See the table showing the average value of an American silver dollar each year from 1834 to 1862 in H. R. LINDERMAN'S *Money and Legal Tender in the United States*, New York, 1879, p. 161, and compare LAUGHLIN, *History of Bimetallism in the United States*, chaps. iv, v.

<sup>4</sup> *Finance Report*, 1861, p. 62.

<sup>5</sup> *Ibid.*, 1862, p. 9.

<sup>6</sup> Compiled from the "Synopsis of the Returns of the Banks in the Different States," published in the *Finance Report* for 1862, pp. 189 ff.

It is not quite accurate to say that gold coin ceased to circulate. The banks continued to hold large amounts of specie in their reserves,<sup>1</sup> while the government paid interest on a large portion of its debt in gold and required the use of gold by importers in payments at the customs houses. More than this, there was a section of the country where the greenbacks did not succeed in displacing coin even in common business transactions.

In 1862 there seem, according to the treasury reports, to have been no banks in states west of Kansas and Nebraska.<sup>2</sup> Indeed, in California, the wealthiest and most populous of the western states, the existence of banks of issue was expressly prohibited by the state constitution.<sup>3</sup> "Suspension" was, therefore, a much less momentous occurrence for these communities than for those of the East where business centered around highly developed banking systems. West of the Rocky Mountains men continued to buy and sell for coin, giving little thought to the fact that bank notes in circulation elsewhere were no longer redeemed in specie.

But when Congress, by the act of February 25, 1862, provided for the issue of \$150,000,000 of United States notes and made them a legal tender between individuals, the currency troubles of the rest of the country were brought home even to Californians. Under this law it was technically possible for a person who had bought goods from a San Francisco jobbing merchant to compel his creditor to accept in payment greenbacks worth considerably less than the expected gold. Elsewhere this situation had been prepared for by the use of notes of suspended banks for three months before the first United States notes were issued, and men adjusted their business transactions to suit the currency. But on the Pacific coast people

<sup>1</sup> According to the "Annual Reports on the Condition of the Banks," the amount of specie held by institutions in the loyal states increased from 76.4 millions at the beginning of 1862 to 81.5 millions at the beginning of 1863. *House of Representatives Executive Document No. 25*, Thirty-seventh Congress, third session, p. 209; and No. 20, Thirty-eighth Congress, first session, p. 211.

<sup>2</sup> See the bank reports cited in preceding notes.

<sup>3</sup> Article IV, §§ 34, 35.

had been accustomed to a circulation of specie only and were very loath to surrender it. Business men consequently cast around for some means by which they could maintain the circulation of gold and prevent debtors from forcing them to accept greenbacks. One means to this end was the formation among the merchants of San Francisco in November of an agreement "not to receive or pay out legal tender notes at any but the market value, gold being adhered to as the standard." Firms that refused to enter into this agreement, or to abide by it, were to be listed in a black book and required in future dealings to pay cash gold for goods which they purchased.

Loyal observance of such a voluntary agreement, however, was difficult to maintain, and vigorous efforts were accordingly made to secure such action from the state legislature as would secure the same end by legal means. After several other proposals had been rejected, a "specific contract act" was finally passed and approved April 27, 1863. It provided in substance that contracts for the payment of specific kinds of money should be enforceable by legal process. After the constitutionality of this law had been affirmed by the state courts, business men were able to protect themselves against tenders of greenbacks effectively by inserting in all their contracts clauses specifying that payment should be made in gold coin. This became the general practice and consequently the people of California maintained a large circulation of specie during all the seventeen years that the rest of the United States were using paper money. Greenbacks were not prevented from circulating, but when they were passed it was usually at their gold, not at their nominal, value.<sup>1</sup>

## II.

### BANK NOTES.

As has been said, the withdrawal of gold from circulation in other parts of the United States left the notes of the state banks

<sup>1</sup> BERNARD MOSES, "Legal Tender Notes in California," *Quarterly Journal of Economics*, Vol. VII, pp. 1-25; J. A. FERRIS, *The Financial Economy of the United States Illustrated*, San Francisco, 1867, Nos. V, XV.

and the federal treasury the only monetary circulation, aside from "deposit currency," available for use in large transactions. But neither the bank nor the treasury notes were at that time a legal tender, and consequently the circulation of both was for a time beset with difficulties that require discussion in some detail.

Though all the banks, with the exception of the banks of the states of Ohio, Kentucky, and Indiana, and a few scattering institutions elsewhere like the Chemical Bank of New York, had followed the example of the New York banks very promptly in suspending specie payments,<sup>1</sup> the suspension was perhaps nowhere complete. Banks very generally continued for some time to supply coin to their customers who required it for the payment of duties or any other necessary purpose.<sup>2</sup> Indeed, in those states where the banking laws imposed penalties for refusal to pay notes in coin the banks were obliged to redeem their notes whenever the holder insisted upon their so doing. Such was the case in New York. The state superintendent of banking was required by law to close any institution that failed to redeem its notes in coin within fifteen days after the notes had been protested.<sup>3</sup> As the superintendent had no discretion in the matter, the banks were at the mercy of any note holder who chose to insist upon redemption in gold. Certain speculators in currency took advantage of the situation to collect bank notes systematically and send them in to the issuing institutions for payment in coin which they then sold at a premium.<sup>4</sup> Fear of such operations made the banks unwilling to pay out their notes freely. Instead of notes they issued many certified checks,

<sup>1</sup> *Bankers' Magazine* (N. Y.), Vol. XVI, p. 650.

<sup>2</sup> *Ibid.*, Vol. XVI, p. 648 (Rhode Island); p. 649 (Philadelphia); Vol. XVII, p. 760 (Boston); *House of Representatives, Executive Document* No. 25, Thirty-seventh Congress, third session, p. 80 (Connecticut); p. 28 (New Hampshire); *New York Herald*, January 5, 1862. This and the subsequent references to newspapers gives the date of the "financial column."

<sup>3</sup> See text of the law, *Bankers' Magazine*, Vol. XVI, p. 811.

<sup>4</sup> *New York Herald*, January 20, 1862.

which for a time formed a prominent part of the circulating medium.<sup>1</sup>

For such reasons there was a marked contraction in the bank note circulation in the first months of 1862. January 4, the New York city banks had outstanding 8.6 millions of notes ; by March 1 this circulation had fallen to 5.4 millions. The hesitation of the banks ceased, however, when the treasury notes in circulation were made legal tender, for this measure provided funds other than coin which note holders pressing for redemption could be compelled to accept. Accordingly, the banks began to pay out their notes again, and, by May 3 their circulation was practically as large as it had been January 4.<sup>2</sup>

The situation in Ohio, Kentucky, and Indiana where the state banks did not suspend specie payments immediately did not long maintain its peculiarity. These banks were deterred from following the example of eastern institutions by clauses in their charters which forbade the redemption of their notes in anything but coin. In Ohio, however, the legislature enacted a law January 16, which granted immunity from the penalties for suspension to such banks as should advance coin to be used in paying the interest on the state's foreign debt.<sup>3</sup> Similarly in Kentucky, "the banks of issue having consented to loan to the citizens of the state \$1,000,000 . . . the legislature passed an act on March 8, 1862, relieving the banks from the penalties for suspension of specie payments and authorizing them to pay out United States legal tender notes."<sup>4</sup>

The Bank of the State of Indiana and its branches, under the presidency of Hugh McCulloch, held out somewhat longer. December 31, McCulloch issued a statement that under no circumstances would the banks fail to redeem the pledge it had given to pay its notes in coin.<sup>5</sup> In pursuance of this policy the

<sup>1</sup> *Hunt's Merchants' Magazine*, Vol. XLVI, p. 309.

<sup>2</sup> See the New York city bank statements, *ibid.*, p. 559. Compare *Report of the Secretary of the Treasury*, December, 1862, p. 15.

<sup>3</sup> *Banker's Magazine*, Vol. XVII, pp. 163, and 793, 794.

<sup>4</sup> KNOX, *History of Banking in the United States*, New York, 1900, p. 642.

<sup>5</sup> *Bankers' Magazine*, Vol. XVI, p. 650.



managers of the branches were instructed "to redeem promptly in coin all notes that might be presented ; to anticipate and prevent their return, as far as might be practicable, by taking them up at commercial points with other cash means ; [and] to make arrangements with depositors by which deposits of gold should be paid in gold, deposits of bank notes . . . in bank notes."<sup>1</sup> By this course "in a few weeks the larger part of the circulating notes of the branches were at rest in their vaults, and the business of the branches was reduced to what could be safely done upon their capitals and deposits." When, however, the legal tender act had been passed the question arose whether the bank might not legally use United States notes in discharge of its notes. After ascertaining that the courts would give prompt trial to a case involving this important question, Mr. McCulloch, in order to make a test case, directed that greenbacks be tendered in payment of a note. The Supreme Court of Indiana decided that the legal tender act was constitutional, and that the bank might redeem its notes in notes of the government. When this decision was rendered the bank at once commenced paying out its notes again.<sup>2</sup>

The same question regarding the availability of greenbacks for redemption of bank notes that under state laws were payable only in coin, had to be faced in other states. In New York the question was peculiarly pressing because the legislature was powerless under the constitution to pass such measures of relief as were enacted in Ohio and Kentucky.<sup>3</sup> To determine whether banks could avail themselves of the act of Congress making treasury notes a legal tender, test cases were arranged by the superintendent of the banking department and a decision obtained in June, 1863 from the court of appeals maintaining the constitu-

<sup>1</sup> H. McCULLOCH, *Men and Measures of Half a Century*, p. 136.

<sup>2</sup> *Ibid.*, pp. 136-8.

<sup>3</sup> Article 8, § 5 of the constitution provided that "the legislature shall have no power to pass any law sanctioning in any manner . . . the suspension of specie payments by any person, association, or corporation issuing bank notes of any description." *Bankers' Magazine*, Vol. XVIII, p. 811.

tionality of the law.<sup>1</sup> This and similar decisions rendered in other states removed the last doubt about the right of banks to use the greenbacks instead of gold coin as reserves and put them in a position to issue their own notes freely.

The increase in the circulation of the state banks after the passage of the legal tender act was very general. Secretary Chase estimated that the notes issued by banks in the loyal states were 167 millions, November 1, 1862 as compared with 130 millions a year before.<sup>2</sup> The "Annual Report on the Banks in the United States" for 1863, though not without omissions, made the circulation in the same states about the first of the year nearly 181 millions.<sup>3</sup> Bank deposits increased with like rapidity. According to the bank reports the deposits in the loyal states were 257 millions in January, 1862, and 367 millions in January, 1863.<sup>4</sup> After April 1, 1863, however, the increase of circulation seems to have been checked by the tax imposed of 1 per cent. a year on certain proportions of the notes outstanding and 2 per cent. on amounts in excess of the specified proportions.<sup>5</sup>

Shortly thereafter the organization of new national banks and the conversion of state into national banks introduced a new element into the circulating medium. As the issue of national bank notes proceeded for several years more rapidly than the withdrawal of the state bank issues, there was again an increase in the total bank circulation.<sup>6</sup> But aside from this increase the change was merely the substitution of a more uniform and

<sup>1</sup> See *Annual Report of the Superintendent of the Banking Department of the State of New York*, January 7, 1864. *Bankers' Magazine*, Vol. XVIII, pp. 811-13. The full text of the court's opinion is published, *ibid.*, p. 345 ff.

<sup>2</sup> *Report of the Secretary of the Treasury*, December, 1862, p. 14.

<sup>3</sup> *House of Representatives Executive Document* No. 20, Thirty-eighth Congress, first session, p. 210.

<sup>4</sup> *Ibid.*, *loc. cit.*, for 1863, and *House of Representatives Executive Document* No. 25, Thirty-seventh Congress, third session, p. 208, for 1862.

<sup>5</sup> Act of March 3, 1863, § 7, 12. Statutes at Large, 712.

<sup>6</sup> See the statement of bank notes outstanding in the *Statistical Abstract of the United States*, 1878, p. 14.

better secured kind of notes for the diverse issues of the state banks.

### III.

#### OLD DEMAND NOTES.

The circulation of the demand treasury notes was for a time beset by more difficulties even than was the circulation of bank notes. The first issues of these notes by Secretary Chase in the late summer and autumn of 1861 was opposed by the banks which subscribed to the \$150,000,000 loan. When the Secretary insisted on making the issues, however, they yielded and with few exceptions made no difficulty about receiving such of the notes as were brought to them by depositors.<sup>1</sup> The situation changed, however, when the treasury, by suspending specie payments, gave notice that these notes would not be redeemed in coin.<sup>2</sup> At this time there were \$33,460,000 in circulation.<sup>3</sup> Early in January the New York banks held a meeting to discuss what policy should be pursued with regard to them. Opinion was divided and the meeting ended with the adoption of a vague resolution "That before we consent to receive such notes, we must require that such legal provision be made by Congress as shall insure their speedy redemption, and that a committee of this association be appointed to consider that subject and report

<sup>1</sup> Cf. JOURNAL OF POLITICAL ECONOMY, Vol. VII, pp. 310, 311; BRECKENRIDGE, "The Demand Notes of 1861," *Sound Currency*, Vol. V, No. 20.

<sup>2</sup> It has been stated in an official document that "the demand notes were paid in gold when presented for redemption," and that this, with their receivability for all public dues, "prevented their depreciation." (*Information Respecting United States Bonds, Paper Currency, Coin, etc.*, Revised ed. United States Treasury Department Circular, No. 123, July 1, 1896, p. 7.) This has been the common view and is found e. g., even in the work of so recent a writer as Professor A. B. Hart (*Life of Chase*, p. 242). But none the less it is certainly an error. Mr. Chase himself said, "The banks of New York suspended on the 30th of December, 1861, . . . and the government yielded to the same necessity in respect to the United States notes then in circulation." (*Report of the Secretary of the Treasury*, 1862, p. 7; cf. *American Annual Cyclopædia*, 1861, p. 300; and *Hunt's Merchants' Magazine*, Vol. XLVII, p. 509.) More than this, the "old demand notes," as the issue came to be called, did depreciate in value, which could hardly have happened had they been "paid in gold when presented for redemption."

<sup>3</sup> *Report of the Secretary of the Treasury*, December, 1862, p. 9.

to an adjourned meeting."<sup>1</sup> Of course this resolution procured no action by Congress, and the committee was unable to frame a policy acceptable to all the banks. Some institutions took the notes without question as current funds, while others did not.<sup>2</sup> The American Exchange Bank, for example, issued a circular dated January 1, 1862, informing its dealers and correspondents that it would not accept treasury notes from them, unless they would sign a contract to accept payment in the same notes at par.<sup>3</sup>

But so long as a portion of the subscriptions to the \$150,000, 000 loan remained unpaid almost all of the banks were ready to receive demand notes at least in small quantities, because they could be used in making payments into the subtreasury.<sup>4</sup>

After the last instalment on the loan had been paid on the morning of February 4, the disinclination to receive the notes as current funds became much stronger. Banks could no longer find an outlet for them at the subtreasury, and they could not be certain that depositors would accept such notes in payment of checks, since they were not yet legal tender. The metropolitan banks seem to have been rather more liberal than those of Boston, Philadelphia and other cities.<sup>5</sup> But even in New York there was apparently a considerable number of large institutions that discriminated against the treasury notes and accepted them only as "special deposits," repayable in kind.<sup>6</sup> Refusal to take

<sup>1</sup> *Banker's Magazine*, Vol. XVI, p. 647.

<sup>2</sup> *New York Herald*, January 2, 5, and 6, 1862.

<sup>3</sup> *Bankers' Magazine*, Vol. XVI, p. 647. Compare the similar circulars received by Chicago banks from their New York correspondents, *Hunt's Merchants' Magazine*, Vol. XLVI, p. 293.

<sup>4</sup> *New York Herald*, February 4, 1862, and *Hunt's Merchants' Magazine*, Vol. XLVI, p. 309. The banks of Boston acted in similar fashion. Though these banks were forbidden by their charters to pay out any notes except their own, a resolution was adopted, January 10, that banks concerned in the government loan should accept treasury notes "receivable for government dues to the extent of 25 per cent. of their subscriptions to said loan, including such notes as they may have on hand." *Bankers' Magazine*, Vol. XVI, p. 648.

<sup>5</sup> *New York Herald*, January 24 and 29, 1862.

<sup>6</sup> *Ibid.*, February 4 and 5, 1862. *Hunt's Merchants' Magazine* states that this course was pursued by a majority of the banks, Vol. XLVI, p. 309.

the notes on the part of even a few banks in the clearing-house association made serious trouble for the other institutions that desired to receive them without question. For, if one of the more liberal banks accepted demand notes on deposit as current funds, it had to make provision for meeting checks drawn against this deposit and presented at the clearing house by other institutions. At the clearing house, however, the demand notes would not be accepted in payment of a balance, and the bank that had taken such notes from its customers had therefore to provide other funds for meeting the checks, or, if it did not have sufficient currency of other kinds, to take out loan certificates on which 7 per cent. interest was charged.<sup>1</sup>

This situation seems to have given much concern to the treasury authorities. Though the treasury notes were commonly accepted in business transactions between individuals without question,<sup>2</sup> men could not use them freely at the banks, and consequently persons who received large quantities were compelled to sell them at a slight discount.<sup>3</sup> It was the desire to prevent such discrimination against the treasury notes that Mr. Chase gave as his reason for urging the retention of the legal tender clause in the bill introduced by Mr. Spaulding.<sup>4</sup>

While the bill was still pending, another scheme for the same purpose was devised. Mr. Cisco, the head of the New York subtreasury, suggested and Chase authorized the acceptance of the treasury notes on deposit at the subtreasuries at 5 per cent. interest.<sup>5</sup> It was apparently their expectation that the banks would now accept the notes with the intention of depositing them at the sub-treasury and so drawing interest upon

<sup>1</sup> *Hunt's Merchants' Magazine*, Vol. XLVI, p. 309. Cf. the remarks of Senator Simmons in the *Congressional Globe*, Thirty-seventh Congress, second session, p. 794.

<sup>2</sup> *New York Herald*, February 9; *Shipping and Commercial List*, February 19, 1862.

<sup>3</sup> According to the *New York Tribune*, February 13, 1862, the selling price was one-fifth of one per cent. below par, while notes could be bought of the street brokers at half this discount.

<sup>4</sup> Letter of January 29, 1862, to Thaddeus Stevens. *Congressional Globe*, Thirty-seventh Congress, third session, p. 618. Cf. remarks of Mr. Bingham, *ibid.*, p. 639.

<sup>5</sup> Cf. SCHUCKERS, *Life of Chase*, p. 269.

a part of their current funds.<sup>1</sup> But the plan was received less kindly than had been hoped. On February 8, about half a million was deposited with Mr. Cisco, and by the 11th another million had been added.<sup>2</sup> But these deposits seem to have come mainly from savings banks and out-of-town institutions.<sup>3</sup> Most of the city banks looked upon the plan as a bid to induce the public to deposit with the sub-treasury instead of with themselves.<sup>4</sup>

For the time, therefore, this plan accomplished little, and the demand notes continued to rule at a slight discount until the passage of the legal tender act.<sup>5</sup> The first reports of the law that reached New York indicated that the treasury notes already in circulation, as well as the new issues, had been made a legal tender.<sup>6</sup> An amendment to this effect had indeed been made by the Senate on motion of John Sherman;<sup>7</sup> but it had not been agreed to by the House of Representatives,<sup>8</sup> and at the recommendation of the Committee of Conference the Senate receded from it.<sup>9</sup> Though the report was false it changed the attitude of the hesitating banks toward the notes. The new law provided that customs should be paid not in paper money but in coin. From this rule, however, an exception was made in favor of the old demand notes, because the act under which they were issued declared them "receivable in payment of public dues."<sup>10</sup> If made legal tender, then, the old notes would differ from the new only in possessing a virtue lacked by the latter—availability for use at the customs house in place of coin. As but 60 millions of the demand notes had been authorized, and as they were to be replaced as rapidly as feasible by the new issues, it seemed

<sup>1</sup> Cf. *Hunt's Merchants' Magazine*, Vol. XLVI, p. 310; *New York Herald*, February 9, 1862.

<sup>2</sup> *New York Herald*, February 8 and 11, 1862.

<sup>3</sup> *Ibid.*, February 14.

<sup>4</sup> *Hunt's Merchants' Magazine*, Vol. XLVI, p. 310.

<sup>5</sup> *New York Tribune* February 13, and *Shipping and Commercial List*, February 19, 1862.

<sup>6</sup> *New York Times*, February 26; *Herald*, March 3.

<sup>7</sup> *Congressional Globe*, Thirty-seventh Congress, second session, p. 771.

<sup>8</sup> *Ibid.*, p. 888.

<sup>9</sup> *Ibid.*, p. 929.

<sup>10</sup> Act of August 5, 1861, § 5, 12 Statutes at Large, 313.

likely that there would be a strong demand for them from importers who had duties to pay. Consequently even the banks that had hitherto refused to receive the notes as current funds, now refused to pay them out, and instead of being at a discount of  $\frac{1}{10}$  to  $\frac{1}{8}$  they rose to a premium of  $\frac{1}{8}$  to  $\frac{1}{4}$ .<sup>1</sup> This advance to a premium, however, proved premature. When after three or four days it was found that the retirement of the old notes could not commence until the new notes were printed, that this would require at least a month, and that in the meantime the treasury must continue to pay out the old notes, they fell again to par.<sup>2</sup> And when on the 4th of March the full text of the legal tender act was received, and it was found that the legal tender clause included only the new issues, some of the banks reverted to their former policy and began again to discriminate against the government notes. This caused them to fall once more to a discount.<sup>3</sup>

The discovery that the old demand notes had not been made legal tender seems to have been as much of a surprise to many members of Congress as it was to business men in New York. Steps were taken at once to remedy the omission. A clause making the treasury notes already in circulation a legal tender was inserted in the bill to authorize the purchase of coin for the payment of interest on the public debt, which Thaddeus Stevens introduced into the House March 6.<sup>4</sup> When this bill received President Lincoln's signature, March 17,<sup>5</sup> there was no longer any reason for discriminating against the demand notes, and they returned for a short time to par.<sup>6</sup>

<sup>1</sup> *New York Times*, February 26 and 27, 1862; *Herald*, February 27 and 28; *Commercial Advertiser*, February 26, 27, 28 and March 1; *Shipping and Commercial List*, March 1.

<sup>2</sup> *New York Herald*, March 1 and 3; *Times*, March 3.

<sup>3</sup> *New York Herald*, March 4; *Commercial Advertiser*, and *Shipping and Commercial List*, March 5.

<sup>4</sup> *Congressional Globe*, Thirty-seventh Congress, second session, pp. 1103 and 1116.

<sup>5</sup> 12 Statutes at Large, 370.

<sup>6</sup> In fact, the notes returned to par as soon as it was known that the clause had been introduced, because it was a foregone conclusion that the measure would become a law.—*New York Commercial Advertiser*, March 8.

Meanwhile the New York banks had taken action that put an end to all opposition on their part to the use of the treasury notes. At a meeting held March 7, 1862, they determined to make their clearings in certificates issued by the assistant treasurer for deposit of the demand notes with him at 5 per cent. interest.<sup>1</sup> This arrangement, which went into effect March 10, made treasury notes the standard for all banking operations in current funds.<sup>2</sup> Foreseeing that when the new notes were ready for issue the old notes receivable for customs would be more valuable, Mr. Cisco published a notice March 14, that all certificates of deposit issued in the future would be paid in any notes that were legal tender.<sup>3</sup> The new respect in which the old demand notes were coming to be held was shown by the fact that this notice caused a falling off in the daily deposits. The check was only temporary, however, for the new notes became themselves available for deposit early in April.

From the 7th of March, then, the old demand notes were current funds in New York and passed without question at par. But soon after the appearance of the greenbacks their position changed again. The first greenbacks in New York came in a remittance of \$4,000,000 received by the assistant treasurer April 5.<sup>4</sup> A large sum was paid out the same day and from this time on issues were so rapid that 90 millions were outstanding before the 7th of June.<sup>5</sup> All through April the old demand notes circulated side by side with the new notes at par.<sup>6</sup> But as the supplies of the latter currency became sufficient for the wants of business a difference became apparent between the treatment of the two issues. Owing to their receivability for customs, the old demand notes were preferred, and as early as the second week in May they began to be quoted regularly

<sup>1</sup> *Bankers' Magazine*, Vol. XVI, pp. 809-11.

<sup>2</sup> Cf. *New York Times*, March 10.

<sup>3</sup> See text in *Annual American Cyclopadia*, 1862, p. 456.

<sup>4</sup> See the financial columns of the New York papers under this date.

<sup>5</sup> *House of Representatives Miscellaneous Document* No. 81, Thirty-seventh Congress, second session, p. 1.

<sup>6</sup> *Hunt's Merchants' Magazine*, Vol. XLVII, p. 33.



at a premium which, slight at first, gradually rose as the volume in circulation became smaller and the premium on gold for which they served as a substitute at the customs house became higher. The possibility of obtaining this premium caused holders of old demand notes to hoard them just as they had hoarded gold in January. When Mr. Chase wrote his letter of June 7th requesting authority for a second issue of greenbacks he said that the \$56,500,000 of the old demand notes then outstanding were "held by banks and capitalists, and not used as circulation."<sup>1</sup> They were sold from time to time to importers and used in the payment of duties. As they came into the treasury through the customs houses, the old demand notes were canceled and replaced by greenbacks. By this process the amount outstanding had been reduced to  $3\frac{1}{2}$  millions by June 30, 1863.<sup>2</sup> This withdrawal from circulation in May, 1862, closed the brief but eventful history of the old demand notes as a part of the circulating medium.

From what has been said it is clear that the business public must have suffered considerable inconvenience from the uncertainty regarding the currency between the time of suspension and of abundant issues of the greenbacks. Gold had ceased to be used in ordinary transactions; notes of state banks, always inconvenient, were in many cases not issued freely for prudential reasons and had to be replaced in considerable measure by certified checks, and the treasury notes were most of the time discriminated against by many banks. The appearance of the greenbacks in large amounts afforded relief from such difficulties, though the wide and rapid fluctuations in their value gave rise to other embarrassments of a more serious character.

#### IV.

##### "SHINPLASTERS" AND FRACTIONAL CURRENCY.

One difficulty with the currency, however, the greenbacks could not meet. While they served as a convenient medium of

<sup>1</sup> *House of Representatives Miscellaneous Document No. 81, Thirty-seventh Congress, second session, p. 1.*

<sup>2</sup> *Report of the Secretary of the Treasury, December, 1863, p. 45.*

exchange in large transactions, they did not supply the want of small change, for the first legal tender act had forbidden the issue of notes less than five dollars.<sup>1</sup> Hardly had the perplexities of business men who handled currency in large amounts been relieved by the free issues of the greenbacks when yet greater inconveniences began to be felt by everyone from the lack of fractional coins.

When specie payments were suspended the subsidiary silver coins did not disappear from circulation at once as did gold, for reasons found in existing coinage laws. While a dollar contained 371.25 grains of pure silver, only 345.6 grains were put into two half dollars, four quarters or ten dimes.<sup>2</sup> In January, 1862, one grain of gold was selling for 15.35 grains of silver.<sup>3</sup> At this ratio a silver dollar was worth \$1.04 in gold, while two halves, four quarters, or ten dimes were worth but 97.05 cents. While, therefore, there was a profit in treating gold coin as bullion instead of as money the moment a fractional premium appeared upon it in paper, there was no profit in exporting or in melting subsidiary silver coins until the premium on gold had risen sufficiently above 3.1 per cent to give brokers compensation for collecting the coins and shipping them to Canada. For, when gold stood at  $103\frac{1}{10}$ , a paper dollar was worth 97 cents in gold—just as much as 10 dimes. It was therefore a matter of indifference to the possessor of subsidiary silver coins whether he paid it over as current funds in purchasing commodities or sold it for paper money. But when gold rose above  $103\frac{1}{10}$ , a paper dollar became worth less than 10 dimes, and a person who had the latter could make them go farther in the payment of debts by selling them for paper money and giving it to his creditor than by handing him the silver itself. Since, however, some trouble and expense were involved in melting or exporting coins of small denominations, it was a nice question how high the

<sup>1</sup>§ 1. 12 Statutes at Large, 345.

<sup>2</sup>Act of February 21, 1853. 10 Statutes at Large, 160. Cf. LAUGHLIN, *History of Bimetallism in the United States*, chapter v, § 4.

<sup>3</sup>See the table in LAUGHLIN, *op. cit.*, Appendix II, F.

premium on gold must rise above  $3\frac{1}{10}$  before the silver would disappear from circulation.

For the first week after payments in specie had been stopped the premium on gold varied from 1 to 3 per cent.<sup>1</sup> But on the 8th of January it rose to  $3\frac{1}{2}$  and on the 9th to  $4\frac{1}{4}$ . At the latter premium a paper dollar was worth 95.92 cents in gold, or 1.13 cents less than 10 dimes. According to the money column of the New York *Herald* this slight difference sufficed to induce brokers to begin the purchase of silver coins. "An inquiry has sprung up for silver," reports the financial writer on the 9th, "which has been held at 1 per cent. premium." It is not improbable, however, that purchases of silver on so slight a margin were prompted rather by anticipations of the profit that could be made if the premium on gold continued to advance than by the opportunity for immediate profit. If so, the buyers of silver were disappointed, for after rising to 5 on the 10th of January, the premium fell again below 4.<sup>2</sup> During February the average premium was 3.5, during March 1.8, during April 1.5, and during May 3.3. At such low prices for gold, or more accurately, at such high prices for paper money, there was no profit in buying subsidiary silver coins for export or melting, and consequently they continued to circulate as money. But in June, when the hopes of a speedy end of the war were being dispelled, the paper money fell in value, that is, the premium took an upward turn. From  $3\frac{9}{16}$  on the first Monday of the month, the premium rose to  $4\frac{5}{16}$  on the second Monday,  $6\frac{5}{8}$  on the third,  $7\frac{3}{8}$  on the fourth, and  $9\frac{1}{8}$  on the fifth.<sup>3</sup> With gold at the last named premium, a paper dollar was worth 91.69 cents in gold—a price which afforded an ample margin of profit for the purchase for export of silver coins worth 97.05 cents.

Accordingly, the newspapers late in June and early in July

<sup>1</sup> Cf. Money articles of the New York papers, especially the *Commercial Advertiser*.

<sup>2</sup> See the table of daily premiums in the JOURNAL OF POLITICAL ECONOMY, Vol. VI, pp. 286 ff.

<sup>3</sup> These figures are averages of the highest and lowest prices of gold recorded each day.

began to remark a rapid disappearance of small change from circulation. For example, the *Springfield Republican* of July 2, 1862, said, "The ruling premium of 5 to 6 per cent. on silver coin, as compared with the paper currency in use, is fast driving it out of circulation. Laboring people and those of small means are constantly to be seen at brokers' offices selling \$10 to \$50 of silver change at  $2\frac{1}{2}$  per cent. premium, which the brokers ship to Europe where they can realize 6 or 7 per cent. in comparison with our irredeemable paper currency." Similarly, the *New York Times* of July 18 declared that, "The annoyances suffered in this city and throughout the country, during the last two or three weeks, on account of the scarcity of specie, have been unspeakable, and in many lines of business, the loss of custom and profit has been heavy."<sup>1</sup> Though over 45 millions of subsidiary coins had been struck under the act of 1853,<sup>2</sup> of which perhaps three-fifths circulated in the loyal states,<sup>3</sup> nearly the whole amount seems to have been withdrawn from use as currency between the middle of June and the middle of July. Apparently, the brokers who purchased the coin exported most of it. Over  $3\frac{3}{4}$  millions were carried to Canada in 1862 by a single express company.<sup>4</sup> American coin became a drug in the Canadian market and was accepted only at a discount.<sup>5</sup> Considerable amounts were shipped also to South America and a sum large in the aggregate was no doubt kept for a long time in small hoards.<sup>6</sup>

Of course the disappearance of the silver coins from circulation caused serious inconvenience in retail trade. Various shifts were tried to supply their place. In Philadelphia old Spanish quarter dollars were brought again into use. These coins had formed a considerable portion of the small change

<sup>1</sup> Compare *New York Tribune*, July 9 and 16; *Commercial Advertiser*, July 10 and 16; *Chicago Post*, July 15, and other references in the following notes.

<sup>2</sup> *Report of the Director of the Mint*, October, 1862, p. 49.

<sup>3</sup> *Cf. Hunt's Merchants' Magazine*, Vol. XLVII, p. 155.

<sup>4</sup> *Annual American Cyclopaedia*, 1862, p. 468.

<sup>5</sup> *Cf. Bankers' Magazine*, Vol. XVIII, pp. 83 and 482, Vol. XIX, p. 699.

<sup>6</sup> KNOX, *United States Notes*, p. 100.

before an abundant supply of American silver was furnished under the act of 1853. From long use they had become light in weight. The act of February 21, 1857 provided that they should be accepted by the government offices for twenty instead of twenty-five cents.<sup>1</sup> When the American silver was withdrawn a few of these old coins, because of the less amount of silver left in them, came out of retirement and passed current again as quarters of a dollar.<sup>2</sup>

Another method of meeting the situation was to decline to make change for paper bills at all, or else to charge a premium for the silver returned. This plan is said to have been adopted for a time by transportation companies and many retail shops in New York city.<sup>3</sup> A third device was to cut dollar bank bills into halves or quarters and pass these for 50 and 25 cents. In Hartford, Conn., it was said that some \$20,000 of the bills of the *Ætna Bank* were floating about cut in two.<sup>4</sup> A more ingenious scheme was hit upon by the *Farmers' Bank of Mount Holly*, New Jersey, which paid out notes for \$1.25, \$1.50, and \$1.75 to enable people to make change within twenty-five cents by returning a dollar bill.<sup>5</sup> Much commoner, however, was the issue of notes for fractional parts of a dollar, colloquially called "shinplasters." Though the laws of many states forbade any bank to put into circulation notes less than one dollar, a few institutions adopted this plan relying upon the obvious need of fractional currency to secure immunity from prosecution.<sup>6</sup> But most of the "shinplasters" seem to have been issued by individuals or firms not engaged in banking. In Chicago, for instance, the city railway company supplied twenty-five-cent tickets which the conductors gave in exchange for paper bills and accepted for fares.<sup>7</sup> In Boston Young's Hotel started a sys-

<sup>1</sup> 11 Statutes at Large, 163, and LINDERMAN, *Money and Legal Tender*, p. 32.

<sup>2</sup> *Springfield Republican*, July 15, 1862.    <sup>3</sup> *New York Tribune*, July 9 and 16.

<sup>4</sup> *Bankers' Magazine*, Vol. XVII, p. 404. On similar practices elsewhere see *ibid.*, p. 821.

<sup>5</sup> *Ibid.*, p. 316.

<sup>6</sup> For example of such illegal issues by a banker of Reading, Pa., see *ibid.*, p. 475.

<sup>7</sup> *Chicago Post*, July 15, 1862.

tem of checks for fifteen, twenty-five, and fifty cents with the proprietor's signature attached—an example that saloons, restaurants, and retail shops were quick to follow.<sup>1</sup> Many of these issues were made by irresponsible persons and consequently resulted in loss to those who accepted them.<sup>2</sup> Partly to protect the public from such losses and partly to obtain a "loan without interest" many towns and cities provided for municipal issues of small notes. The city council of Newark, New Jersey, for instance, voted, July 11, "to issue promissory notes to the amount of \$50,000 in denominations ranging from ten cents to fifty cents" and redeemable by the city in sums of \$10 or more.<sup>3</sup> This example was followed by Jersey City, Wilmington, and Albany, and a proposition of this character was dropped in Philadelphia only because it was found to be contrary to state law.<sup>4</sup>

These various substitutes for the silver coins furnished a fractional currency that, although unsatisfactory, had to be tolerated for a time as a makeshift. Secretary Chase, however, took steps promptly to relieve the general embarrassment. He called the attention of Congress to the matter in a letter written July 14, and Congress responded by authorizing the use of "the postage and other stamps of the United States" as currency.<sup>5</sup>

Though this act was approved by the President only three days after Chase's letter was written, some time elapsed before it afforded substantial relief. The chief immediate effect was to cause the use of ordinary letter postage stamps for small change. In New York where as a rule about \$3,000 of stamps were sold daily, the sales ran up to \$10,000 on the day after the bill was approved, and next day to \$16,000.<sup>6</sup> Such stamps, how-

<sup>1</sup> Springfield *Republican*, July 15, 1862.

<sup>2</sup> Cf. quotations from the Philadelphia *Ledger* in the *Bankers' Magazine*, Vol. XVII, p. 823.

<sup>3</sup> New York *Times*, July 13, 1862.

<sup>4</sup> See *Bankers' Magazine*, Vol. XVII, pp. 823, 566, 316, and 161 respectively.

<sup>5</sup> Act of July 17, 1862, 12 Statutes at Large, 592.

<sup>6</sup> *Bankers' Magazine*, Vol. XVII, p. 159.

ever, were exceedingly inconvenient for use as currency because of their small size and their propensity for sticking together and getting crumpled. To take their place Secretary Chase caused a series of special stamps in denominations of 5, 10, 25, and 50 cents to be prepared.<sup>1</sup> They were about  $2\frac{3}{4}$  by  $3\frac{3}{8}$  inches in size, printed on both sides and not gummed.<sup>2</sup> The first issues were made late in August.<sup>3</sup>

In order to force the withdrawal of the "shinplasters," attorneys of the national and local governments in some districts published notices warning the public that the penalties imposed by federal and state laws upon the issue of small notes by unauthorized persons would be vigorously enforced by prosecutions.<sup>4</sup> Municipal "shinplasters," however, were not affected by the Postage Currency Act which forbade such issues only to "private corporations," firms and individuals.<sup>5</sup> Town and city notes continued therefore to circulate unhindered for a considerable time.

The difficulties with the fractional currency do not seem to have come to an end even by the close of 1862. The various substitutes for coin could not be dispensed with until the "postage currency" became abundant enough to supply the demand for small change, and at first the issues were rather slow. By the end of September but \$787,700 had been placed in circulation, and in the next two months the total reached less than four millions.<sup>6</sup> In December Mr. Chase reported that it had been "found impossible to keep pace with the public demand for this

<sup>1</sup> *Report of the Secretary of the Treasury*, December, 1862, p. 28.

<sup>2</sup> Representations of this "postage currency" are given by KNOX, *op. cit.*, pp. 105-8.

<sup>3</sup> KNOX, *op. cit.*, p. 104; *Bankers' Magazine*, Vol. XVII, p. 239.

<sup>4</sup> For example see the notice given in New York city, *Bankers' Magazine*, Vol. XVII, p. 256, and compare the action taken by the bank commissioners of Illinois, *ibid.*, p. 567.

<sup>5</sup> § 2. 12 Statutes at large, 592. See also the correspondence between the chairman of the finance committee of Wilmington and the commissioner of internal revenue. *Bankers' Magazine*, Vol. XVII, p. 566.

<sup>6</sup> *Report of the Secretary of the Treasury*, December, 1862, pp. 43, and 12.

currency," and that although the daily issue had "been rapidly increased to \$100,000," and was then being "extended as fast as practicable to twice that amount," the supply was still "largely deficient."<sup>1</sup>

In the West the *St. Louis Republican* of December 10 stated that "There is still much complaint of the scarcity of small change,"<sup>2</sup> and in the East the *Springfield Republican* of the same date reported that "shinplasters" were still in circulation. In the same month the city council of New York passed an ordinance providing for the issue of 5, 10, 25, and 50 cent notes, which the *Bankers' Magazine* declared to be "a necessity growing out of the scarcity of change in this city."<sup>3</sup> Ordinary postage stamps also continued in use side by side with the deficient "postage currency" despite the efforts of the post-office department to prevent it. The postmaster-general in his report dated December 1, 1862, said :

Postmasters were specially instructed to discontinue sales of stamps to persons evidently designing them for use as currency; but, notwithstanding the precaution taken and the checks adopted . . . the demand has until quite recently been largely in advance of the daily manufacture . . . the majority of applications . . . from postmasters were only partially filled, generally but one-half the number asked for having been sent. . . . The aggregate value of the postage stamps and stamped envelopes sold at 29 of the larger post-offices during the third quarter of 1862 was \$1,400,937.48, and during the corresponding quarter of 1861 was \$606,597.40, showing an excess in favor of 1862 of 794,340.08. . . . Nearly the entire excess . . . has been or is now in use as currency.<sup>4</sup>

In the winter months, however, the supply of "postage currency" became more adequate to the needs of retail trade. Nearly seven millions had been issued by the end of December, 1862, and 12 millions more were added in the next three months.<sup>5</sup> When people could obtain this federal currency, they

<sup>1</sup> *Ibid.*, pp. 28, 29.

<sup>2</sup> Quoted in *Bankers' Magazine*, Vol. XVII, p. 568.

<sup>3</sup> Vol. XVII, p. 562. Mayor Opdyke, however, did not agree with this view, and vetoed the measure. *New York Tribune*, December 22, 1862.

<sup>4</sup> *House of Representatives Executive Document No. I, Thirty-seventh Congress, third session, Vol. IV, pp. 131, 132.*

<sup>5</sup> BAYLEY, *National Loans of the United States*, p. 159.



manifested a strong disposition to reject postage stamps and "shinplasters"—even those issued by the towns. The Springfield *Republican* of January 29 said :

There is a general agreement throughout the country to banish all private and corporate shinplasters and use only the government postage currency for change after the first of February. In Boston already, none but those of the Parker House remain in circulation, and these are refused at many stores, and are being fast retired. . . . A few choice shinplasters may be temporarily retained in special localities, till sufficient of the postal currency works in to accommodate public wants. . . . There are large amounts of the postal currency in circulation, and much is hoarded that will come out as soon as the other sort is banished.<sup>1</sup>

As late as March the Philadelphia *Ledger* said :

Now Philadelphia is tolerably well supplied with small currency authorized by the government, while at New York and other eastern points they are suffering great inconvenience and much loss by an immense circulation of all sorts of trash. . . . So intolerable has the nuisance become, everybody is denying them, causing quite a panic among the poorer classes—those least able to bear the loss. . . . Nobody but the brokers will deal in them now. . . . The corporation issues of Newark and Jersey City . . . more popular than others . . . are included in the general decree of banishment. . . . The people will take nothing but government postage currency for small change. There appears to be no lack of it now.<sup>2</sup>

To protect holders of postage stamps that had been used as currency from losses similar to those suffered by holders of shinplasters the postmaster-general was obliged to order the redemption of such stamps as were evidently uncanceled.<sup>3</sup>

May 27, 1863, issues of the postage currency ceased, after 20 millions had been placed in circulation. Its place was taken by the "fractional currency" authorized by the Act of March 3, 1863,<sup>4</sup> The new notes were made of thinner but stronger paper, could not be counterfeited easily, and were not injured by wet-

<sup>1</sup> Compare the notices published by the same newspaper at the head of its editorial section January 23, that "no shinplasters or postage stamps except in the sheet," would be received in remittances after that date. See also notice of January 27.

<sup>2</sup> Quoted in *Bankers' Magazine*, Vol. XVII, p. 823.

<sup>3</sup> *Report of the Postmaster-General* cited above, p. 133, and *Annual American Cyclopadia*, 1862, p. 463.

<sup>4</sup> § 12 Statutes at Large, 711.

ting.<sup>1</sup> But aside from the technical superiority of the new issues as currency, the change was one only in name. The title "postage currency" had been a misnomer, for the notes were not like ordinary postage stamps. Issues of the new notes commenced October 10, 1863. By the 30th of June, 1864 about  $7\frac{3}{4}$  millions of the fractional currency had been put in circulation while 5 millions of the postage currency had been withdrawn, so that the whole amount outstanding was not quite 23 millions.<sup>2</sup> The same process of withdrawal of the old and substitution of the new notes was continued during the next year. The amount of postage currency decreased from 15 to 10 millions, while the amount of the fractional currency increased from  $7\frac{3}{4}$  millions to 15. Thus at the end of the war the aggregate fractional currency of both kinds in use was 25 millions.<sup>3</sup>

## V.

## MINOR COINS.

The difficulties with the circulating medium did not stop with the subsidiary coins of silver, but extended even to the minor coins of base metals. The act of February 21, 1857 had provided for replacing the old copper cents of 168 grains by coins weighing 72 grains and composed of 88 parts copper and 12 parts nickel.<sup>4</sup> Of these new cents there had been issued 116,066,000 by June 30, 1862.<sup>5</sup> The work of exchanging the new for the old coins was still going on, but the director of the mint reported in October, 1862 that the number of old cents was rapidly diminishing and that they would soon disappear altogether from circulation.<sup>6</sup> The new cents, together with such of the old as still remained in use, were the only minor coins,

<sup>1</sup> *Bankers' Magazine*, Vol. XVIII, p. 364.

<sup>2</sup> *Report Secretary of the Treasury*, December, 1864, p. 45.

<sup>3</sup> *Report Secretary of the Treasury*, December, 1865, p. 53.

<sup>4</sup> § 4. 11 Statutes at Large, 163.

<sup>5</sup> *Reports of the Director of the Mint*, October, 1857 and 1862, pp. 49 and 57 respectively. Here and in other citations of the *Reports of the Director of the Mint* the pages refer to the Finance Reports.

<sup>6</sup> P. 46.

for the making of half cents had been stopped by the Act of 1857, and two, three, and five-cent pieces were not authorized until 1864, 1865 and 1866, respectively.<sup>1</sup>

The withdrawal of the silver coins from circulation in June and July caused a marked extension in the use of the nickel cents as substitutes. To make them serve more conveniently in the place of silver, cents were sometimes done up in rolls of twenty-five and passed from hand to hand, frequently without opening.<sup>2</sup> The demand for these coins at the mint suddenly became very great. 3,600,000 pieces were struck at Philadelphia in July and there was a great rush to procure them.<sup>3</sup> "Large amounts," said the director of the mint in October, "have been sent to every part of the country, and orders beyond our ability to fill are constantly forwarded to the mint."<sup>4</sup> The number of cents coined increased from 10 millions in the fiscal year 1861 and 12 millions in 1862, to 48 millions in 1863.<sup>5</sup>

It is a curious but well-attested fact that the nickel cents went to a premium almost as soon as the subsidiary silver coins. The New York *Commercial Advertiser* of July 10 reported that while gold was at 17 per cent. premium in paper, silver was at 10 and nickel at 4 per cent. A similar condition was noted by the Springfield *Republican* July 15th, and the director of the mint in his annual report for 1863 said that "for the past two years" cents had "commanded a premium" and were then "scarcely to be had."<sup>6</sup>

The cause for a premium on cents at the time was, however, different from the cause for the premium on gold and silver coins. The latter were at a premium because the bullion in them was of more value than the corresponding sums of paper money. According to the director of the mint, however, the cent in 1862 cost "the government scarcely half a cent,"<sup>7</sup> and,

<sup>1</sup> *Coinage Laws of the United States, 1792 to 1894*. Fourth ed., p. 89.

<sup>2</sup> Springfield *Republican*, July 15, 1862.

<sup>3</sup> *Bankers' Magazine*, Vol. XVII, p. 390.

<sup>4</sup> *Report*, p. 46.

<sup>5</sup> *Report of the Director of the Mint*, October, 1865, p. 237.

<sup>6</sup> P. 189.

<sup>7</sup> *Report*, p. 49.

again, in 1863 he reported that nickel cents contained a "half cent's worth of metal, more or less, according to market fluctuations."<sup>1</sup> These statements of cost to the government, however, do not necessarily show the market value of cents as bullion, because a large part of the metal used in their manufacture was imported,<sup>2</sup> and the duties which private men would have to pay were remitted to the mint. But these duties were not heavy enough to make a very great difference. Under the Tariff Act of July 14, 1862, imported nickel paid a tax of but 10 per cent. *ad valorem*, and under the Act of June 30, 1864 this rate was increased but to 15 per cent.<sup>3</sup> Meanwhile copper in pigs, bars, or ingots, paid two cents a pound, according to the law of March 2, 1861, and  $2\frac{1}{2}$  cents, according to the act of June 30, 1864.<sup>4</sup>

Consequently, even if the director's estimates of cost be taken to mean cost on a specie basis and 10 per cent. be added for the duties, 100 of the one cent coins would have had a market value as bullion of not more than 55 cents in gold. On this estimate cents would not have gone to a premium in paper currency for the same reason as gold and silver until the specie value of a paper dollar was less than 55 cents—that is, until gold was at a premium of almost 82 per cent. But this did not occur until April, 1864. In July, 1862, when a premium is said to have been paid for cents, the average value of paper dollars was 86.6 cents in gold, and the metal in 100 nickel cents was worth at most about  $63\frac{1}{2}$  cents in paper. If men were ready to pay a premium for cents, then it must have been because of their anxiety to procure a part of the insufficient supply for use as small change—not because they could make a profit by melting or exporting the coins.

This need for one cent pieces continued to be felt even after the issue of the postage and fractional currency, for the lowest

<sup>1</sup> *Report*, p. 188.

<sup>2</sup> *Ibid.*, p. 189, and letter of the Director of the Mint to Chase, March 16, 1864, in *Congressional Globe*, Thirty-eighth Congress, first session, p. 1228.

<sup>3</sup> 12 Statutes at Large, 550 and 13 Statutes, 211.

<sup>4</sup> 12 Statutes at Large, 182, and 13 Statutes, 206.

denominations supplied were five and three cents respectively.<sup>1</sup> That the supply of cents was not sufficient to meet the demand is clear. Before suspension they were "considered redundant in quantity," according to the director of the mint, and it "was part of the hourly finesse of buyers and sellers to get rid of them."<sup>2</sup> Although 116 millions of the nickel coins had been issued by June 30, 1862 and 48 millions more were added during the next year, the supply was still so short in comparison with the demand that not less than 300 varieties of illegal cent tokens of the same size, but less weight than the mint cent and containing no nickel, were issued by private parties in direct violation of the law and "until suppressed were freely used as coin by the public."<sup>3</sup> Since the supply was thus deficient it is perhaps not surprising that business houses were willing to pay a slight premium for their small change.

As the amount of cents called for continued to be so great and as nickel was a costly ingredient, the director of the mint proposed in October, 1863 to substitute bronze for the alloy of nickel and copper. <sup>4</sup>No action was taken upon this recommendation at the time, and on March 2, 1864, he wrote a letter to Secretary Chase, calling attention again to the subject.

This change in the material of the cent . . . [he said] has become a necessity from the advance[d] price of nickel (for a supply of which we are at present entirely dependent upon the foreign market, paying for it in gold or its equivalent), and the great uncertainty of procuring an adequate supply for the future from any source at a price within the legal limit, . . . if nickel is retained it will be impossible to meet the enormous demand for cents, and the increasing cost of production may compel a cessation of that coinage. The demand for cents is now far beyond our ability to supply it.<sup>5</sup>

Chase sent this letter with one of his own, supporting the director's recommendations, to Fessenden.<sup>6</sup> When the proposal to drop nickel as an ingredient in the coinage became known it encountered serious opposition from the friends of Mr. Joseph

<sup>1</sup> KNOX, *United States Notes*, pp. 103 and 104.

<sup>3</sup> *Ibid.*, *loc. cit.*

<sup>2</sup> *Report of 1863*, p. 189.

<sup>4</sup> *Ibid.*, *loc. cit.*

<sup>5</sup> *Congressional Globe*, Thirty-eighth Congress, first session, p. 1228.

<sup>6</sup> *Ibid.*, p. 1227.

Wharton, from whose works in Pennsylvania and New Jersey came the entire domestic supply.<sup>1</sup> To remove their objections Mr. Pollock, the director, wrote a second letter March 16, recommending as a compromise that the old alloy of 88 per cent. copper and 12 per cent. nickel be retained, but that the weight of the cent be reduced from 72 to 48 grains.<sup>2</sup> Mr. Clark, from the Senate finance committee, however, brought in a bill for a bronze cent of 48 grains and a two-cent piece of the same composition, but twice the weight.<sup>3</sup> This measure was at once passed by the Senate<sup>4</sup> and a month later by the House after very brief discussion.<sup>5</sup>

In October the director of the mint reported that the new coinage law had been "highly successful." "The demand for the one and two-cent pieces," he added, "has been unprecedented, and every effort has been made to meet it." In explaining why the demand continued in excess of the supply despite daily issues largely in excess of any former period, he said,

Large quantities are hoarded and thus kept from circulation. They have also been bought and sold by small brokers at a premium. This has induced individuals to collect them for the purpose of sale, thus producing a scarcity and inconvenience to the public that ought not to exist.<sup>6</sup>

The letters of Mr. Pollock to Secretary Chase and these remarks in the October report indicate that the time had at last come when the bullion value of nickel cents was approximating their nominal value as currency. Indeed, as early as March, 1864, Lyman Trumbull, of Illinois, remarked in the Senate,

<sup>1</sup> Mr. Wharton himself prepared a little pamphlet, *Project for Reorganizing the Small Coinage of the United States of America*, in which he offered to provide all the nickel that would be necessary for making not only one and two-cent pieces, but also other coins less than 25 cents at \$2.50 per pound. At this price he estimated that one and two-cent pieces could be made at a profit of  $33\frac{1}{3}$  per cent. to the government. The pamphlet bears the date April 15, 1864.

<sup>2</sup> *Congressional Globe*, Thirty-eighth Congress, first session, p. 1228.

<sup>3</sup> *Ibid.*, p. 1227.

<sup>4</sup> *Ibid.*, p. 1228.

<sup>5</sup> *Ibid.*, p. 1763. Act of April 22, 1864. 13 Statutes at Large, 54.

<sup>6</sup> *Report*, October, 1864, p. 213.

The cent as a general thing does not circulate in the country now, I think. We see some few of them here, but in my travels I very seldom see a cent. I do not know how it may be in other portions of the country.<sup>1</sup>

At this time, March 21st, gold was at 162 and paper was accordingly worth 61.7 in specie. If cents were being hoarded it must have been because the advance in the price of nickel, of which Mr. Pollock complained, had carried the bullion value of 100 coins above 62 cents in gold. But whether there was a profit in melting or exporting the minor coins in March, 1864, there apparently was one in June and the following months. The monthly average price of gold was above 200 from June until February of the next year inclusive. During this period the average specie value of paper dollars varied from 38.7 cents in July to 48.7 cents in February. Even had there been no advance in the gold price of nickel there would have been a margin of profit in collecting coins which would pass current as money at a gold equivalent of considerably less than 50 cents, but could be sold as bullion for perhaps 55 or more. Consequently, it is not improbable that some of the brokers who bought nickel cents at a premium in the summer of 1864 purchased them to melt or export, not to sell again for change. On the other hand it should be pointed out that the expense of collecting and handling one cent pieces would be much greater in proportion to their bullion value than in the case of silver coins.

The situation was of course somewhat different with the cents struck under the new coinage law. These contained no nickel and weighed but two-thirds as much as the previous issues. During the fiscal year 1865 the government made a profit of about \$400,000 from their manufacture.<sup>2</sup> If any premium was paid for them it must consequently have been from the desire for change. As the nickel cents appear, from what Senator Trumbull and the director say, to have gone out of circulation in large measure, the scarcity of change less than three cents—the smallest fractional note—must have been severe. Of the bronze

<sup>1</sup> *Congressional Globe*, Thirty-eighth Congress, first session, p. 1227.

<sup>2</sup> *Report of the Director of the Mint*, September, 1865, p. 232.

cents 5,874,000 were struck before July 1st and of the two-cent pieces 1,822,500.<sup>1</sup> Though the coinage during the fiscal year 1865 was very rapid—an average of  $2\frac{1}{4}$  million two-cent pieces and  $4\frac{1}{2}$  million cents each month<sup>2</sup>—the supply could not have been sufficient to meet the demand.

One more change was made in the circulation of minor coins before the end of the war. From a price of 226 the last day of 1864 gold fell to 200 by the 1st of March, and the rapid progress of the northern armies then promised a still further fall, which was realized in April and May, when the average price was 148.5 and 135.6 respectively. This fall in gold or rise of paper money seemed to show that the day was close at hand when minor coins would remain in circulation without difficulty.<sup>3</sup> Accordingly a bill was passed without discussion by Congress,<sup>4</sup> authorizing the issue of a three-cent piece, made of copper and nickel, in the proportion of 75 parts of the first and 25 parts of the second. This coin was to be legal tender in payments of 60 cents, and the one and two-cent pieces in payments of four cents. At the same time it was provided that thereafter no fractional notes should be issued of denominations less than five cents, and that any such notes outstanding should be destroyed when paid into the treasury.<sup>5</sup>

When the director of the mint prepared his report at the end of September, 1865, he made no further complaints about the premium on minor coins. Paper dollars had then a value of more than 69 cents in gold, and even the three-cent pieces, containing 25 per cent. of nickel, seemed to have been worth more

<sup>1</sup> No separate statement is made by the director of the mint of the coinage of nickel and bronze cents in the fiscal year of 1864, but the above figures are obtained by subtracting from the total coinage of cents up to June 30, 1864, the total number of copper and nickel cents struck as given in *Coinage Laws of the United States 1792, 1894*, 4th ed. p. 89.

<sup>2</sup> *Report of the Director of the Mint*, September 1865, p. 235.

<sup>3</sup> *Hunt's Merchant's Magazine* for May, 1865, includes "coppers" in its statement of "the active circulation of the country, Vol. LII, p. 381.

<sup>4</sup> *Congressional Globe*, Thirty-eighth Congress, second session, pp. 1391 and 1403.

<sup>5</sup> Act of March 3, 1865. 13 Statutes at Large, 517.



as currency than as bullion. "The coinage of the cent and the two-cent piece from the bronze alloy," he said, "has been very large, but not in excess of the demand. They have been distributed to almost every part of the United States, and many into states, West and South, that heretofore refused to use such coin as currency."<sup>1</sup> He closed by suggesting that the policy pursued in issuing a three-cent piece be followed further by making five-cent coins also of 25 per cent. nickel, and that, to make room for their circulation, all fractional notes below ten cents be withdrawn.

## VI.

### TREASURY NOTES.

As was said above, the first greenbacks were issued early in April, 1862. From this time on until specie payments were resumed, January 1, 1879, they served as the standard of value in all business transactions and also as an important part of the circulating medium. 98.6 millions were issued before July 1, 1862. From this time on for two years the government was paying out large sums in these notes, but was also redeeming those paid in to it and then reissuing them. During the next fiscal year the issues were 291.3 millions as compared with the redemptions of 2.1 millions; during 1864, 86.4, as compared with 42.6, and during 1865, 4.2, as compared with 4.3. This left 431 millions outstanding at the close of the war.<sup>2</sup> The greenbacks served as a medium of exchange, not only in large, but also in small transactions, for while the first act provided that \$5 should be the lowest denomination, the second and third permitted any denomination not less than a dollar. The amount of the several denominations in use is indicated by the following table.

But the greenbacks were by no means the only form of government obligations employed as currency. Three other sorts of treasury notes were made a legal tender to the same extent

<sup>1</sup> P. 232.

<sup>2</sup> BAYLEY, *National Loans of the United States*, p. 157. These statements differ slightly from those given year by year in the contemporaneous reports of the secretary of the treasury.

TABLE I.

United States notes of each denomination outstanding at the close of each fiscal year from 1862 to 1866.<sup>1</sup>

(In millions of dollars.)

	1862.	1863.	1864.	1865.	1866.
One dollar.....	....	16.0	16.8	17.8	17.2
Two dollars.....	....	17.0	17.7	19.6	18.8
Five dollars.....	17.1	79.9	95.5	96.0	95.4
Ten dollars.....	15.4	90.0	108.7	109.5	109.0
Twenty dollars.....	15.0	74.9	86.6	86.1	85.1
Fifty dollars.....	13.0	23.0	29.9	29.7	29.3
One hundred dollars.....	13.0	30.8	34.2	33.8	33.3
Five hundred dollars.....	13.0	26.5	25.4	24.8	35.4
One thousand dollars.....	10.0	29.5	37.1	35.8	57.1
Total.....	96.6	387.6	451.9	453.1	480.7
Denomination unknown, in reserve.....	....	...	4.6	22.0	79.9
Net.....	96.6	387.6	447.3	431.1	400.8

as United States notes, but differed from the latter in that they bore interest. The third legal tender act, approved March 3, 1863, authorized the issue of \$400,000,000 treasury notes, bearing not more than 6 per cent. interest, redeemable in not more than three years, and a legal tender for their face value, excluding interest.<sup>2</sup> Under this act Mr. Chase issued 166.5 millions of two-year 5 per cent. notes between July 1, 1863, and June 30, 1864, and 44.5 millions of one year 5 per cent. notes between January 1 and June 30, 1864.<sup>3</sup>

How far these notes were employed as currency is altogether uncertain. It was apparently the expectation of the treasury that banks and capitalists into whose hands they came would retain the notes to secure the interest. This would probably have happened very generally had the interest been paid only at maturity. But when, in the autumn of 1863, Mr. Chase borrowed money for paying the troops from the banks, to be repaid in 5 per cent. notes, the banks stipulated that the notes given

<sup>1</sup> *Report of the Secretary of the Treasury*, December, 1896, p. 62.

<sup>2</sup> § 2. 12 Statutes at Large, 710.

<sup>3</sup> BAYLEY, *op. cit.*, p. 161.

them should bear half-yearly interest coupons.<sup>1</sup> One hundred and fifty of the 166.5 millions of two-year notes issued were of this form.<sup>2</sup> They were found in practice to be a most unsatisfactory form of currency. After Secretary Chase had ruled that the interest coupons must be detached in the presence of an officer of the treasury or of a national bank,<sup>3</sup> the notes were usually paid out with no regard to the interest until the date on which the next coupon was payable approached, then hoarded for a time, and as soon as the interest had been collected once more thrown into circulation.<sup>4</sup> This tended, of course, to cause periodical expansions and contractions of the currency embarrassing alike to the business public and to the treasury. Their circulation was also rendered irregular by fluctuations in the current rates of interest on short-time loans in the New York market. When money was at 5 per cent. or less men found it advantageous to retain the government notes in their own hands; but when the rates rose to 7 or 8 few would choose to keep their funds in a short-time 5 per cent. security.<sup>5</sup>

Appreciating these evils, Mr. Chase and Mr. Fessenden, who succeeded him as secretary of the treasury on the 5th of July, 1864, determined to withdraw the coupon notes as rapidly as possible. Before December Secretary Fessenden reported that about 90 of the 150 millions issued had been retired.<sup>6</sup> Their place was occupied by another form of interest-bearing legal tender treasury notes issued under the authority of the acts of March 3, 1863, and June 30, 1864.<sup>7</sup> The new notes ran three years and bore interest at 6 per cent., compounded half yearly, but payable only at maturity. Some 17 millions were issued

<sup>1</sup> *Hunt's Merchants' Magazine*, Vol. L, p. 455.

<sup>2</sup> *Report of the Treasurer*, November, 1864, p. 75.

<sup>3</sup> *Hunt's Merchants' Magazine*, Vol. L, p. 455.

<sup>4</sup> *Report of the Secretary of the Treasury*, 1864, p. 18; *Hunt's Merchants' Magazine*, Vol. L, pp. 215, 216, and Vol. LI, p. 447.

<sup>5</sup> *Hunt's Merchants' Magazine*, Vol. L, pp. 215 and 455.

<sup>6</sup> *Report*, p. 18. Cf. Chase's letter of April 17, 1865, to Colonel J. D. Van Buren, in Schuckers' *Life*, p. 413.

<sup>7</sup> 12 Statutes at Large, 710, and 13 Statutes, 218. Cf. BAYLEY, p. 84.

before the close of the fiscal year 1864 and 180 millions during the next year.<sup>1</sup> These issues were called compound interest notes. They were commonly regarded as the least injurious form of treasury notes devised during the war because of the inducement which the compound interest gave for keeping them as an investment.<sup>2</sup> Of course this inducement became stronger the longer the note had been issued. Thus a \$10 note—the smallest denomination—was worth \$10.60 at the end of the first year, \$11.25 at the end of the second, and \$11.94 at the end of the third. Anyone who paid the note away at the end of the first year would therefore lose 60 cents, at the end of the second \$1.25, and at the end of the third \$1.94.

Nevertheless the compound interest notes served to increase the currency inflation to an uncertain extent, both directly and indirectly. The comptroller of the currency thought that in October, 1865, perhaps 10 millions of these notes were in actual circulation as money,<sup>3</sup> and in December the secretary of the treasury thought it was "safe to estimate" that 30 millions of the one and two-year notes of 1863 and the compound interest notes together were so used.<sup>4</sup> Perhaps the indirect use was really more important. This was found in practice of banks of holding compound interest notes as reserves in place of greenbacks that bore no interest. The comptroller of the currency stated that the amount held by national banks October 2, 1865, was 74¼ millions.<sup>5</sup> Similar use was made of the one and two-year 5 per cent. notes left outstanding.<sup>6</sup> In so far as interest bearing legal tender notes were kept in this fashion they set free greenbacks for circulation among individuals.

<sup>1</sup> BAYLEY, p. 163. The form of these notes is given by Knox, p. 111.

<sup>2</sup> *Report of the Secretary of the Treasury*, 1864, p. 18.

<sup>3</sup> *House of Representatives Executive Document No. 4*, p. 5, Thirty-ninth Congress, first session.

<sup>4</sup> *Report*, p. 9.

<sup>5</sup> See reference in note 2. They were not, however, a legal tender in payment of bank notes. 13 Statutes at Large, 219.

<sup>6</sup> *Bankers' Magazine*, Vol. XVIII, p. 827; *Hunt's Merchants' Magazine*, Vol. XLIX, p. 384.

The list of government obligations employed as currency is not yet complete. Two other forms, although not a legal tender, were used as a circulating medium. The issue of certificates of indebtedness, bearing interest at 6 per cent. and payable in one year, had been authorized without limitation of amount by the Act of March 1, 1862.<sup>1</sup> This method of postponing claims which they had not the funds to meet at once was availed of on a large scale by the secretaries of the treasury during the entire war. Fifty millions of such certificates were issued in the fiscal year 1862, 157 millions in 1863, 169 millions in 1864, and 131 millions in 1865.<sup>2</sup> Most of these notes were paid out to contractors and by them used either as collateral for procuring bank loans or directly as currency. Much of the time they were sold at a small discount, but despite this they passed freely from hand to hand as current funds.<sup>3</sup>

Similar use was made of the "seven-thirties." This was the name given to the three-year treasury notes bearing 7.3 per cent. interest issued under the acts of July 17, 1861; June 30, 1864, and March 3, 1865.<sup>4</sup> Interest on notes issued under the first of these laws was paid in gold, but the second and third issues were payable, principal and interest, in lawful money. In the summer and autumn of 1864 Secretary Fessenden offered 7:30 notes of the second issue in small denominations to army officers and soldiers in payment of their wages. Over 20 millions were thus paid out in place of greenbacks.<sup>5</sup> In December, 1865, Secretary McCulloch reported that many of these small denominations were in circulation as money.<sup>6</sup>

<sup>1</sup> 12 Statutes at Large, 352.

<sup>2</sup> BAYLEY, p. 159.

<sup>3</sup> Compare *Hunt's Merchants' Magazine*, Vol. LII, p. 382.

<sup>4</sup> 12 Statutes at Large, 259; 13 Statutes, 218 and 468.

<sup>5</sup> *Report of the Secretary of the Treasury*, 1864, p. 21.

<sup>6</sup> *Report*, 1865, p. 9. Under the act of June 30, 1864, it was provided that such of the notes as should be made payable principal and interest at maturity should be a legal tender (13 Statutes at Large, 218). As, however, the secretary preferred to attach interest coupons of which only the last was payable with the note at maturity, they did not possess this property. Cf. *W. F. De Knight, History of the Currency of the Country and of the Loans of the United States* (Treasury Department Document No. 1943), 1897, p. 96 and form of the 7:30's as given on the following pages.

## VII.

## RECAPITULATION.

Perhaps the clearest view of the confused state of the monetary circulation of the United States during the Civil War can be obtained from a summary statement of the various coins,

TABLE II.

Currency of the United States at the close of each fiscal year from 1860 to 1866.

(In millions of dollars.)

	1860	1861	1862	1863	1864	1865	1866
I. <i>Specie</i> : <sup>1</sup>							
1. Gold coins.....	184.6	245.3	22.0	22.0	22.0	22.0	22.0
2. Silver dollars.....							
3. Subsidiary silver.....	39.6	42.2	3.0	3.0	3.0	3.0	3.0
4. Minor coins.....	.9	1.0	1.2	1.6	2.1	3.3	3.9
II. <i>Postage and fractional currency</i> : <sup>2</sup>							
1. Postage currency.....				20.2	15.2	9.9	7.0
2. Fractional currency.....					7.7	15.1	20.0
III. <i>Non-interest bearing, legal tender, treasury notes</i> :							
1. Old demand notes <sup>3</sup> .....			53.0	3.4	.8	.5	.3
2. Greenbacks <sup>3</sup> .....			96.6	387.6	447.3	431.1	400.8
IV. <i>Bank notes</i> : <sup>4</sup>							
1. Notes of state banks...	207.1	202.0	183.8	238.7	179.2	142.9	20.0
2. " "national" ...					31.2	146.1	281.5
V. <i>Interest bearing, legal tender treasury notes</i> : <sup>5</sup>							
1. One year, 5 per cent, treasury notes of 1863...					44.5	42.3	3.5
2. Two-year, 5 per cent, treasury notes of 1863...					109.0		
3. Compound interest notes					15.0	193.8	159.0
VI. <i>Government obligations not a legal tender</i> : <sup>6</sup>							
1. Certificates of indebtedness.....			49.9	156.8	160.7	115.8	26.4
2. 7:30 treasury notes of 1864.....						234.4	806.3
3. 7:30 treasury notes of 1865.....						437.2	
VII. <i>Coin, bullion, and paper money in the Treasury</i> . <sup>5</sup>	6.7	3.6	23.8	79.5	35.9	55.4	80.8

<sup>1</sup> See explanations in text below.

<sup>2</sup> Compiled from the annual *Reports of the Secretary of the Treasury*.

<sup>3</sup> See Table I.

<sup>4</sup> *Statistical Abstract of the United States*, 1878, p. 14.

<sup>5</sup> *Information Respecting U. S. Bonds, Paper Currency, Coin, etc.* (Revised Ed. Treasury Department Circular No. 123, July 1, 1896), p. 52.

government obligations used as currency, and bank notes outstanding at the close of the several fiscal years, so far as this is ascertainable. Such a statement is presented on the preceding page with a few explanatory notes.

This table is intended rather as an indication of the various kinds of currency in use than as a quantitative statement of the circulating medium. Few of the items can be regarded as showing with any degree of definiteness amounts in use as money. The specie circulation, for example, is computed on the basis of the statistics of coinage and the director of the mint's estimate that in 1861 there were from 275 to 300 millions of specie in the country and that in 1862 there were 45 millions of silver coinage.<sup>1</sup> A different result would have been reached had Mr. Chase's guess at the amount of coin been taken in place of the director's.<sup>2</sup> Of course the coins put down as circulating after 1862 were used only on the Pacific coast. The common guess is that about 25 millions were employed there, and this sum has been divided between gold and subsidiary silver again by guesswork.<sup>3</sup> The figures for the minor coins show the amounts struck under the acts of 1857 and the laws of 1864, 1865 and 1866, as given in the current reports of the director of mint. But, as has been shown, it is probable that a considerable part of these coins were withdrawn from circulation at least during the summer, autumn and winter of 1864. On the other hand some of the old copper cents made before 1857 remained still in circulation in 1862 and large amounts of cent tokens were privately issued in 1863.

The figures for the postage and fractional currency are drawn from the public debt statements of the annual reports of the secretary of the treasury. They are subject to a considerable but indefinite error, particularly in the later years, on

<sup>1</sup> *Report of 1861*, p. 62; *Report, 1862*, p. 49.

<sup>2</sup> Chase made the coin of the loyal states November 1, 1861, not less than \$210,000,000. (*Report, 1862*, p. 13.) The Director of the Mint made this same sum somewhere between 255 and 280 millions. See note 1.

<sup>3</sup> Cf. *Information Respecting United States Bonds, Paper Currency, Coin, etc.* (Revised Ed. Treasury Department Circular No. 123, July 1, 1896), p. 52, note 1.

account of the large number of these little notes lost and destroyed. It must also be remembered that the place in the currency which they were intended to fill was largely occupied from July, 1862, to perhaps February or March, 1863, by shin-plasters and postage stamps.

The next four items in the table are less uncertain. It is well ascertained that the old demand notes were not commonly used as currency after May, 1862. From that time on they were seldom paid out except as a substitute for gold at the customs houses. The circulation of greenbacks during the war, however, is subject to small doubts although different official documents do not give precisely identical figures, and the same is true of the notes of state and national banks.

In the next two divisions—interest-bearing government obligations which were and which were not a legal tender—the amount outstanding is stated with accuracy by the register of the treasury, but no reliable estimate can be made of the amount of these securities that was in actual use as currency at the different dates.

Statements of the amount of the monetary circulation of the United States during the Civil War have been published from time to time in official documents and frequently accepted uncritically as the basis of argument in currency discussions.<sup>1</sup> The preceding review of the situation, indefinite and tedious as it is, has at least the negative merit of showing that such statements are subject to a much wider margin of error than is commonly the case—and few would be found to claim a high degree of accuracy for statements of this sort under the most favorable circumstances. To cast up the totals of the above table would be not only useless, but positively misleading, because several of the items are mere guesses and in the case of others where the amounts are reasonably certain not all of the sums set down were in use at any time as currency. Nor could any estimate

<sup>1</sup> See for example the *Statistical Abstract* for 1878, p. 14, and the circular of the Treasury Department referred to above.



be made on the basis of the totals that would command confidence. But while the amount of currency in circulation is not and cannot be known, it is evident from the discussion that not least among the unhappy consequences of the legal tender acts was to throw the circulating medium into disorder and cause much inconvenience to the business public. The more serious effects of unsettling the standard of value remain to be discussed elsewhere.

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## THE PRODUCTION AND CONSUMPTION OF THE PRECIOUS METALS.

THE vast accumulation of economic statistics has had little effect upon economic theory. Prices, wages, interest, rent, have each been the subject of searching statistical inquiries; still the theoretical treatment of these topics goes on along abstract lines, as in the days of Adam Smith. All deductive reasoning must proceed from a few axiomatic propositions of an empirical character; so political economy virtually assumes the sufficiency of a few crude observations, while systematic collections of economic acts are available for scientific interpretation.

Referring, in particular, to the subject of money, we have heard, on the one hand, that gold and silver are commodities, and that their value is determined as that of any other commodity; on the other hand, it is argued by the advocates of the quantitative theory that the volume of money in circulation determines its value. The depreciation of silver is attributed by some to improved methods of mining, by others, to demonetization. Deductive arguments have been exhausted on both sides without advancing the question to a theoretical agreement. Practically this question has ceased to be an "issue," and is therefore open to a dispassionate examination.

It is not the object of this paper to prove or disprove a theory, or to offer a new solution, but merely to sift and weigh the evidence which was gathered while the controversy was in progress, with a view to ascertaining what we know and what is mere speculation.

The primary source of all exact knowledge on the subject of the precious metals and coinage is the *Reports of the Director of the United States Mint*. In the beginning of the past century the annual reports of the director of the mint did not exceed a few pages in the *Report of the Secretary of the Treasury*. A brief reference to the sources of production of the precious metals

occurs first in the report for the year 1824, but the information is inexact and incomplete, and is, moreover, confined to gold and silver deposited at the mint for coinage. Tabular statements first appear in the annual report for 1832; the report for 1836 contains, for the first time, in an appendix, a summary of the operations of the United States mint since its foundation in 1793. In the report for 1853 we find the first attempt to bring in a general discussion of the money question. No reference is made to the monetary systems of foreign nations until the year 1857. In 1866 Congress appropriated \$10,000 for the collection of statistical data relating to the production of gold and silver in the United States, but the work was not organized until the passage of the coinage act of 1873. By that act a bureau of the mint was created at Washington, whose duty it is, among other things, to collect statistics of the world's production of gold and silver.

Some data were published in the annual report for 1874, but they were merely in the nature of estimates, in which the director himself, Dr. Linderman, placed little reliance. Since that time the work has gradually developed. Since 1880 a special *Report upon the Production of the Precious Metals* has been published annually, apart from the *Annual Report of the Director of the Mint*. Since 1893 the Austrian ministry of finance has, from time to time, published *Tabellen zur Währungs-Statistik*; beginning with the year 1896, the French Administration des Monnaies et Médailles has published annual reports upon the same plan as the United States Bureau of the Mint. Still, except the information relating to domestic production and coinage, all other data contained in the Austrian publication and, until recently, in the French report as well, are mere reproductions of the figures published by the United States Bureau of the Mint.

All original information relating to domestic production and consumption is obtained partly from official registration of imports and exports and the operations of the United States mints and assay offices, partly by circular letters sent to various persons and institutions in the United States. Information relating to

foreign countries is taken from official publications, or procured by correspondence with foreign governments, through the regular diplomatic channels. What an amount of work the undertaking entails upon the bureau may be judged from the fact that, in 1899, 44,690 circulars were sent out from the bureau merely to ascertain the consumption of gold and silver in the industrial arts in the United States; 31,588 replies were received.

Like nearly all government statistical publications, the reports of the director of the mint confine themselves to the presentation of raw material, refraining from all comment upon the figures collected. The further tables have, with few exceptions, been prepared for these papers from the material contained in the reports of the director of the mint. Generally the figures are reproduced for a series of years in every annual report; in many cases, however, it has been necessary to go back to the original reports in order to extract the information sought for each year. This explanation is made in order to dispense with countless references to the pages of the official reports.

#### GOLD.

##### I.

There is no system of government registration of the mining production in the United States, such as is adopted in other countries. The annual output, as reported by the Bureau of the Mint, embraces only the refined product gained from domestic ores; gold ore, the product of the mines, is treated as raw material for gold refining.

Most of the refined product of domestic origin, as well as of the foreign product brought to this country, finds its way to the United States mints and assay offices. Any person may deposit gold bullion at a mint or assay office and receive in exchange gold coin or mint bars; a small charge is made for refining and alloying; there are no charges on refined gold of standard fineness.

The estimate of the annual production of the United States is obtained from two calculations, one based on production, the other on consumption.

The first calculation goes back from the refined product to the raw material, which is classed as follows : (1) unrefined gold bullion, deposited at the mints and assay offices, (2) the estimated fine contents of gold ores exported for reduction abroad, (3) gold refined at private refineries. The figures of the first subdivision are absolutely authentic in so far as they register the quantity of metal weighed, assayed, and entered in the books ; yet the classification by origin of the metal is based upon information furnished by the depositors, and is therefore subject to error. The figures of the second subdivision are likewise obtained by registration at a government institution, viz., the custom house ; still the fine contents of the ores so registered are a matter of conjecture, which can be verified only after refining, *i. e.*, abroad ; no information is available as to the further disposition of the exported ores. The figures of the last subdivision are obtained in reply to circulars sent out by the bureau ; this method leaves the most room for error.

The second calculation, based on consumption, embraces (1) all gold bullion, refined as well as unrefined, deposited at the mints and assay offices ; (2) the estimated fine contents of gold ores exported abroad ; (3) private refinery bars exported abroad ; (4) private refinery bars sold for consumption in the industrial arts. The figures of the second subdivision are identical with those embraced in the first calculation. The figures of the first and the third subdivision are absolutely authentic as to quantity, being obtained by registration at a government institution ; the classification as to origin is subject to error, however, as explained above. The figures of the last subdivision are still more susceptible to error.

Still, when the results of both calculations are compared, we find the discrepancy between them surprisingly small, as appears from the following table :

Year.	Discrepancy	
	Ounces Fine.	Percentage of Total.
1899 - - - -	4,806	0.14
1900 - - - -	5,865	0.15

In order to determine the maximum limit of error in the estimates of the Bureau, we should add the small quantity of gold ore exported for reduction, since it enters into both calculations. The maximum limit of error would then appear as follows:

Year.					Maximum Error. Ounces Fine.	Percentage of Total.
1899	-	-	-	-	5,861	0.17
1900	-	-	-	-	9,248	0.24

Thus the error in the estimate of the bureau is but a fraction of 1 per cent. of the total, and does not go beyond the last four decimal places of the total expressed in fine ounces, or the last three decimal places, if it is expressed in kilograms. The result is certainly very satisfactory.

The bureau of the mint takes the average between the two totals as the nearest approximation, and retains all decimals to the last place, as customary in nearly all United States and British official publications. It is obvious, however, that the last figures are purely imaginary, and therefore misleading, inasmuch as they suggest an exaggerated notion of the exactness of the result. A great deal of effort is wasted in the presentation of these more than useless decimals.

Retaining only those figures which appear in the total of each calculation and substituting ciphers in place of all others, we obtain the following estimates of the gold production of the United States for 1899 and 1900:

Year.		Ounces Fine.	Kilograms.	Value.
1899	-	3,430,000	107,000	\$71,000,000
1900	-	3,830,000	119,000	79,000,000

The figures of the gold production of foreign countries do not claim the same exactness as the estimate for the United States. In most countries no special statistics are collected on the subject; in such cases the total production is obtained by adding together the quantity of gold coined annually and that exported abroad, with an allowance, where possible, for local consumption in the industrial arts. The export figures are far from reliable; in some countries the exports of the precious metals are given in one item, and can therefore not be utilized

at all. The world's production for 1899 and 1900, according to estimates, was as follows:

Year.	Kilograms.	Value.
1899 - - -	461,000	\$306,000,000
1900 - - -	385,000	256,000,000

The total for 1899 is thought to be not more than 3 per cent. short of the actual production. The year 1900 was an abnormal year; owing to the Boer war, the output of South Africa fell from 110,000 to 13,000 kilograms. Now, the war being over, the Transvaal will soon regain its place among the chief gold producers of the world. Therefore, in studying the state of gold production at the close of the nineteenth century, the year 1900 should be eliminated as a disturbing factor.

All gold-producing countries can be divided into three groups, the first embracing South Africa, Australia, and the United States; the second Russia, British America, British India, Mexico, and China; and the third including all other nations. The annual production for 1897-99 was distributed among these three groups as follows:

Group.	1897 Per Cent.	1898 Per Cent.	1899 Per Cent.
I - - -	71.3	73	73
II - - -	21.4	22	22
III - - -	7.3	5	5
Total -	100	100	100

We see that the relative position of these three groups within the last three years remained constant. At the same time the production of the several countries, as well as the total, showed considerable changes, as will appear from the following table:

Country.	1897.	1898.	1899.	1900.
	(In thousands of kilograms.)			
Africa - - -	88	121	110	13
Australia - - -	97	98	119	111
United States - - -	86	97	107	119
Russia - - -	35	38	33	30
British America - - -	9	21	32	42
British India - - -	12	12	13	14
Mexico - - -	11	13	13	13
China - - -	9	8	8	8
All others - - -	26	28	26	35
Total - - -	355	431	461	385

We see from this table that within the triennial period 1897-99 Australia and the United States showed steady growth; the progress of Africa was still more marked, the decline in 1899 from the total for the preceding year being the result of hostilities in South Africa, which closed up the mines for the last quarter of the year; the total for 1899 was virtually the output of only three-quarters of the year. It must be noted in this connection that the Transvaal furnished, even in 1899, 98 per cent. of the entire African product. Of the minor gold-producing countries, British America suddenly sprang into prominence, having outrun China, Mexico, and British India and equaled Russia; all other countries remained stationary. The same conditions continued in 1900, except in so far as they were affected by the war. The rapid growth of the gold production is manifested by the fact that, with the chief producer out of the field, the product of 1900 was still ahead of that of 1897. Owing to a decline in Australia, the United States took the front rank among gold-producing countries, being, however, still short of the Transvaal standard of 1898; British America outran Russia, thus gaining the first place among the minor gold-producing countries.

The distribution of the production by political divisions gives the following interesting results :

Nations.	1897.	1898.	1899.
	Per Cent.	Per Cent.	Per Cent.
British empire with Transvaal	54	59	60
United States - - - -	24	23	23
All others - - - -	22	18	17
	<hr/>	<hr/>	<hr/>
Total - - - -	100	100	100

This table shows that the British empire supplies over one-half, and the United States nearly one-quarter, of the world's gold production. In other words, the London and the New York exchange control five-sixths of the annual gold output of the world.

A comparison with former years shows that the production of 1899 was more than double that of 1892, in which year the output for the first time exceeded the annual average of the California



gold-craze period. The further difference should also be noted that these results are today obtained from working low-grade ores, which has become profitable owing to improvements in technical processes.

## II.

The consumption of gold for the needs of circulation in the United States, within the last four years, outran the domestic production, as shown in the following table:

Year.		Production.	Coinage.
1897	- -	\$57,000,000	\$76,028,485
1898	- - -	64,000,000	77,985,757
1899	- -	71,000,000	111,344,220
1900	- - -	79,000,000	99,272,943

This is not a casual phenomenon; beginning with 1873, in fifteen out of twenty-eight years the coinage exceeded the domestic production. In 1881 the shortage was greater than in 1899, and in 1894 as great, viz.:

Year.	(1 = \$1,000,000.)		
	Production.	Coinage.	Shortage.
1881	- - - 35	97	62
1894	- - - 40	80	40
1899	- - - 71	111	40
<hr/>			
Total for 1873-1900	1,155	1,408	253

In other words, the domestic production of the United States supplied about five-sixths (82 per cent.) of her demand for gold coinage. The deficiency was supplied from other sources. The condition in Great Britain, with her colonial empire, within the last four years is presented in the following table:

Year.	(1 = \$1,000,000.)		
	Production.	Coinage.	Surplus.
1897	- - - 69	46	23
1898	- - - 89	68	21
1899	- - - 112	90	22
1900	- - - 115	113	2

It appears from the foregoing figures that the gold production of the British empire is in excess of the demands of its circulation; within the three years preceding the war the surplus remained constant while production was rapidly growing, which

would show that the entire increase was absorbed by the circulation of the empire; in 1900, under the strain of the war, the surplus was nearly wiped out, still the supply from the British colonies was sufficient to meet the increased demands of circulation. With the production of the Transvaal added, the British empire will be assured a large surplus of gold, far beyond the needs of its own circulation.

With the exception of Mexico and China, which are silver-standard nations, the gold production of all other countries is too small to satisfy the demands for gold currency.

The relation between the world's production and coinage since 1873 is shown in the following table :

Calendar years.	Coinage.	Production.
1873.....	\$257,630,802	\$ 96,000,000
1874.....	135,778,387	91,000,000
1875.....	195,987,428	98,000,000
1876.....	213,119,278	104,000,000
1877.....	201,616,466	114,000,000
1878.....	188,386,611	119,000,000
1879.....	90,752,811	109,000,000
1880.....	149,725,081	106,000,000
1881.....	147,015,275	103,000,000
1882.....	99,697,170	102,000,000
1883.....	104,845,114	95,000,000
1884.....	99,432,795	102,000,000
1885.....	95,757,582	108,000,000
1886.....	94,642,070	106,000,000
1887.....	124,992,465	106,000,000
1888.....	134,828,855	110,000,000
1889.....	168,901,519	123,000,000
1890.....	149,244,965	119,000,000
1891.....	119,534,122	131,000,000
1892.....	172,473,124	147,000,000
1893.....	232,420,517	157,000,000
1894.....	227,921,032	181,000,000
1895.....	231,087,438	199,000,000
1896.....	195,899,517	202,000,000
1897.....	437,722,992	236,000,000
1898.....	395,477,905	287,000,000
1899.....	466,110,614	307,000,000
Total .....	5,131,001,935	3,758,000,000

It appears from this table that within the twenty-seven years since 1873 there were only seven years when the world's annual

production of gold exceeded the annual coinage of the world; the total coinage for the period exceeded the ascertained production by \$1,373,000,000, or, in an average, by \$51,000,000 per year, *i. e.*, by 37 per cent. In other words, the entire output of the gold mines was barely sufficient to supply three-quarters (73 per cent.) of the total demand for gold coinage.

This would seem, at first glance, to justify the clamor against the gold standard. In truth, however, this is but an apparent shortage, inasmuch as in reality the material for coinage is largely supplied by foreign coins, or worn and uncurrent domestic coins.

### III.

Considering, in particular, the quantity of foreign coin remelted at the mints, comparable data are available only for the United States, Austria-Hungary, and Germany, and these do not extend farther back than 1892. In the table below they are collated with the coinage figures:

(1 = \$1,000,000.)

YEAR.	UNITED STATES.		AUSTRIA-HUNGARY.		GERMANY.	
	Total Coinage.	From Foreign Coin.	Total Coinage.	From Foreign Coin.	Total Coinage.	From Foreign Coin.
1892.....	34.8	6.5	14.0	3.0	8.9	0.9
1893.....	57.0	12.6	55.9	40.7	26.3	0.4
1894.....	79.5	1.8	40.4	12.5	37.4	7.3
1895.....	59.6	1.2	18.2	15.6	25.6	12.8
1896.....	47.0	15.4	33.9	15.2	25.1	9.0
1897.....	76.0	14.7	33.6	16.3	30.1	15.3
1898.....	78.0	57.1	14.4	6.5	42.7	21.9
1899.....	111.3	19.1	5.0	1.0	33.6	9.1
Total.....	543.2	128.4	215.4	110.8	229.7	76.7

We see that the total amounts of coinage, as well as the quantities of foreign coin melted at the mints, are subject to violent fluctuations from year to year, and differ widely for every country. This is quite plain, since the volume of coinage is determined, not alone by the development of circulation, where a certain degree of regularity may be surmised, but also

by legislative enactment, which is not subject to periodicity. Thus, *e. g.*, the large quantities of coinage executed in Austria-Hungary in 1893 and 1894 were directly due to the introduction of the new currency system. This likewise accounts for the unusually large quantity of foreign coin remelted in 1893; it was the coins of the independent German states which had been current in Austria-Hungary by virtue of previous conventions, until the passage of the currency act of 1892.

Taking the eight-year period, 1892-99, as a whole, the percentage rate of the quantity of foreign coin remelted to the total coinage executed in each country was as follows :

In the United States	-	-	-	-	-	-	24 per cent.
In Austria-Hungary	-	-	-	-	-	-	51 per cent.
In Germany	-	-	-	-	-	-	33 per cent.

In round numbers, foreign coin supplied in the United States about one-quarter of the material for domestic coinage, in Austria-Hungary about one-half, and in Germany about one-third.

For all other nations, the total quantity of foreign coin melted within the same period, according to reports received at the United States bureau of the mint, aggregated \$18,400,000. The information is incomplete and plainly unreliable. Analogies with those three nations for which reliable data have been available are precluded by the dissimilarity of the results ascertained in each case.

With relation to the United States, information on the subject in question goes back as far as 1873. A comparative statement of the total coinage and the quantity of foreign coin melted is presented in the following table.

It appears from this comparative statement that the quantity of foreign coin remelted, as well as its ratio to the total coinage, is subject to violent fluctuations from year to year; in 1873 the ratio was 1.5 per cent., in 1880, 72 per cent., in 1881, 70 per cent., in 1888, 50 per cent., in 1898, 73 per cent., etc. The result is quite different if the comparison is made by cycles of sufficient length to include years with maximum, minimum,

Fiscal Years.	Total Gold Coinage.	Foreign Coin Melted.
1873.....	\$ 35,249,337	\$ 518,542.14
1874.....	50,442,690	9,313,882.47
1875.....	33,553,965	1,111,792.26
1876.....	38,178,963	2,111,083.80
1877.....	44,078,199	2,093,260.73
1878.....	52,798,980	1,316,461.09
1879.....	40,986,912	1,498,819.71
1880.....	56,157,735	40,426,559.63
1881.....	78,733,864	55,462,385.74
1882.....	89,413,447	20,304,810.78
1883.....	35,936,928	6,906,083.80
1884.....	27,932,824	9,095,461.45
1885.....	24,861,123	7,893,217.77
1886.....	34,077,380	5,673,565.04
1887.....	22,393,279	9,896,512.28
1888.....	28,364,171	14,596,885.03
1889.....	25,543,910	4,447,475.99
1890.....	22,021,748	5,298,773.93
1891.....	24,172,203	8,256,303.80
1892.....	35,506,987	14,040,187.70
1893.....	30,038,140	6,293,296.33
1894.....	99,474,913	12,386,406.81
1895.....	43,933,475	2,278,614.07
1896.....	58,878,490	3,277,409.06
1897.....	71,646,705	13,188,013.86
1898.....	64,634,865	47,210,077.84
1899.....	108,177,180	32,785,152.48
1900.....	107,937,110	18,834,495.53
1901.....	99,065,715	27,906,489.13
Total .....	\$1,484,191,238	\$384,372,020.25

and average ratios. In the following table the 29-year period under consideration is subdivided into three periods, ending respectively in 1881, 1891, and 1901:

PERIODS (FISCAL YEARS).	TOTAL COINAGE.	FOREIGN COIN MELTED.	
		Amount.	Percentage of Total Coinage.
1873-1881.....	\$430,180,645	\$113,852,788	26
1882-1891.....	334,717,013	92,369,090	27
1892-1901.....	719,293,580	178,150,142	25
Total.....	1,484,191,238	384,372,020	26

This table demonstrates that if the figures are summed up for longer periods, the fluctuations of the totals do not affect the ratio of foreign coin remelted to the entire amount coined; the

ratio remains practically constant, the deviations from period to period being only 1 per cent. above or below the average for the entire time considered.

Thus one-quarter of the material consumed in coinage was supplied by foreign coin, whereas the average production of the United States within the same time was only one-sixth short of the amount coined; in other words, the quantity of foreign coin deposited at the United States mints more than made up for the apparent insufficiency of domestic production for the needs of circulation.

The average consumption of foreign coin by the mints of Austria-Hungary and Germany, as stated, was higher than in the United States. If the lowest ratio (26 per cent.) is assumed as the average for the world's consumption, the deficiency in the world's production (27 per cent.) is nearly covered; still, with the present state of statistics, this is a mere guess.

#### IV.

Next to foreign coin, worn and uncurrent domestic coin is also used as material for new coinage. In the United States this item is of far less importance than the former. Until 1873 worn gold pieces circulated without limitation, as though of standard weight. By the Act of February 12, 1873, the limit of tolerance on gold coins was set at  $\frac{1}{2}$  per cent. of the standard weight; if the wear exceeds the limit of tolerance, the gold piece is no longer legal tender and must be recoinced. In consequence of this act, in 1873, \$27,116,948 of worn coin, found upon examination in the treasury vaults, were recoinced, and in the next year \$6,275,367 were retired from circulation and recoinced. Since then the annual recoinages have been insignificant; the minimum, in 1879, was as low as \$198,083; the maximum, in 1894, reached \$2,093,615. Further particulars are given in the following table:

Fiscal Years.	—Amount of Recoinage—		Annual Average.
	Total.	Per Cent.	
1873-1874	\$33,392,315.56	62	\$16,696,158
1875-1901	20,686,954.73	38	766,183
In all	54,079,269.29	100	.....

The ratio of domestic recoinages for the period 1873-1901 to the total coinage for the same period (stated above) was 3.6 per cent. The ratio was affected by the abnormal figures for the years 1873 and 1874; to eliminate this accidental cause, comparison is made below for the period 1875-1901:

Total coinage	-	-	-	\$1,398,499,211
Recoinage	-	-	-	20,686,955
Ratio	:	-	-	1.5 per cent.

It is evident that worn domestic coin furnishes but little material for the mints. Indeed, the coefficient of wear of gold coin is infinitesimal.

The recoinages of 1873 and 1874 represent the total quantity of gold coin worn beyond the limit of tolerance since the establishment of the United States mint in 1793. Within the eighty-year period, 1793-1872, there was coined \$795,091,690 in gold. Thus the total quantity of worn coin did not exceed 4.2 per cent. of the amount coined within the same time. Still, there must have been in 1873 some coins in circulation which were partly worn at the time and reached the limit of tolerance later. Some additional allowance must be made for the wear on these coins; if it is assumed that all recoinages of the years 1875-1901 were only of such coins, and the entire wear is charged to the period 1793-1872, the amount of wear will not be underestimated. This will place the maximum ratio of worn coin for that period at 6.8 per cent.

Multiplying the amount of annual coinage by the age of the coin in 1873, the average age of all coins could be ascertained; to avoid long computations, we assume the annual coinage equal to the average for the eighty-year period, and find the average age, by means of an arithmetical progression, to be equal to  $\frac{(1+80)80}{2 \times 80} = 40.5$  years. The annual ratio of worn coin will then be equal to  $\frac{6.8}{40.5} = 0.17$  per cent. of the amount annually coined.

It means that at this rate all coins will have been worn beyond the limit of tolerance within 588 years from the date of coinage.

The loss of weight on each piece will usually not be much above the legal limit; thus on the annual amount coined it will

constitute a fraction equal to  $0.0017 \times 0.005 = 0.0000085$ , or less than 0.00001. At this rate the loss by wear during 100,000 years would be barely equal to the full weight of a gold coin. On the amount coined during the fiscal year 1901, viz. \$99,000,000, the annual loss through wear will be less than \$990. The cost of remelting and recoinage \$1,116,179 of worn gold coin was, probably, not less than \$990. The former practice of allowing all gold coins to circulate without limitation was, perhaps, the more economical.

The information relating to foreign countries, with the exception of Austria-Hungary and Germany, is fragmentary or deficient. In most countries no separate accounts of domestic and foreign coin remelted are kept at the mints.

The currency reform in 1897 in Russia created a special condition in that country; the change of the monetary unit involved the recoinage of practically the entire stock of gold of former coinages; the ratio of recoinage was, therefore, unusually high, as appears from the following table:

Year.	Total Coinage.	Recoinage.	
		Amount.	Ratio to Coinage, Per Cent.
1898 - -	\$135,788,949	\$95,910,618	70.5
1899 - -	194,481,077	48,976,655	25.2
1900 - -	83,221,525	38,642,449	46.4

A comparative statement for the United States, Austria-Hungary, and Germany has been compiled for the period 1892-99; there are no available data back of 1892.

(1 = \$1,000,000)

YEARS.	UNITED STATES.		AUSTRIA-HUNGARY.		GERMANY.	
	Coinage.	Recoinage	Coinage.	Recoinage	Coinage.	Re-coinage.
1892.....	34.8	0.6	14.0	0.4	8.9	0.08
1893.....	57.0	1.7	55.9	4.1	26.3	0.05
1894.....	79.5	1.3	40.4	2.1	37.4	0.04
1895.....	59.6	1.1	18.2	0.4	25.6	0.07
1896.....	47.0	1.9	33.9	0.4	25.1	0.12
1897.....	76.0	0.8	33.6	2.6	30.1	0.28
1898.....	78.0	1.3	14.4	1.9	42.7	5.73
1899.....	111.3	1.4	5.0	0.4	33.6	0.73
Total.....	543.2	10.1	215.4	12.3	229.7	7.01



It appears from this table that neither the amount of recoinage, nor its ratio to the total coinage, shows any regularity in its changes from year to year for any one state. For the entire eight-year period the ratio was as follows:

United States	-	-	-	1.9 per cent.
Austria-Hungary	-	-	-	5.7 per cent.
Germany	-	-	-	3.1 per cent.

The ratio for Austria-Hungary was thrice as high as that for the United States; this was directly traceable to the act of 1892, which introduced a new monetary unit, as shown by the figures for 1893 and 1894, when one half of the total for the period was recoined.

Notwithstanding the difference in amount and ratio of recoinage for each country, the general conclusion arrived at above in regard to the United States is fully corroborated by the figures for Austria-Hungary and Germany, viz., that worn and uncurrent domestic coin contributes but a small portion of the material for new coinage.

#### V.

The preceding examination has brought out the distinction existing between foreign and worn domestic coin as materials for new coinage; the wear of domestic coin enters to but a small degree into the calculations of the mints, whereas the remelting of foreign coins constitutes an important part of their operations. The distinction is blurred if both are given in one item, as is done in most countries.

There are data for a comparative study of recoinage, regardless of the origin of the coins, for the following nations, beside those considered above: Great Britain with her colonies, the Netherlands, Russia, France, and Japan; figures are available for all these countries as far back as 1892, and for Great Britain and Germany as far back as 1873. A comparative annual statement for the period 1892-99, embracing all countries named, is given in the appendix. The totals, by nations and by years, are presented on opposite page.

(1 = \$1,000,000.)

NATIONS.	COINAGE.	RECOINAGE.	
		Amount.	Ratio to Coinage, Per Cent.
British empire.....	553.1	196.5	36
Russia.....	544.7	272.9	50
United States.....	543.2	138.1	25
Germany.....	229.7	83.7	36
Austria-Hungary...	215.4	122.1	57
France.....	142.4	22.3	16
Japan.....	63.1	4.3	7
Netherlands.....	1.3	0.2	15
Total.....	2,292.9	840.1	37
By Years.			
1892.....	159.0	101.2	64
1893.....	229.8	90.9	40
1894.....	226.0	44.3	20
1895.....	216.6	50.7	23
1896.....	186.8	54.8	29
1897.....	430.5	195.9	45
1898.....	389.2	201.6	52
1899.....	455.0	100.7	22

The total coinage of all other nations reported for the same period aggregated \$66,000,000, of which \$26,000,000 was reported as recoinages. Thus the preceding table embraces 97 per cent. of either item, which makes the results general for the period under consideration. Old coins, as seen, have furnished within this eight-year period 37 per cent. of all the metal for coinage. The amounts, as well as the ratio, differed widely from year to year and from country to country. If the entire period is divided, however, into two quadrennial periods, the ratio exhibits some regularity:

(1 = \$1,000,000.)

Years.	Total Coinage.	Recoinage.	
		Amount.	Per Cent.
1892-1895 - -	831	287	35
1896-1899 - -	1,462	553	38
Total - -	2,293	840	37

The totals in the preceding table include the figures for Austria-Hungary, Russia, and Japan, where, during the period under consideration, monetary reforms were carried out, involving large

issues of new gold coin in place of former coins withdrawn from circulation. A recurrence of the same condition is impossible, for the reason that the gold standard has now been adopted by all the principal nations of the world. To eliminate the effects of this special condition, the figures relating to those three nations are excluded from the calculation, and the results are presented in the following table:

(1 = \$1,000,000.)

Years.			Total Coinage.	Recoinage.	
				Amount.	Per Cent.
1892-1895	-	-	653	208	32
1896-1899	-	-	816	233	28
Total	-	-	1,469	441	30

Here again the fluctuations of the ratio from the average for the eight-year period are within the ordinary limits common to all statistical calculations. Moreover, the average for the five countries does not differ much from the average for the world obtained above (30 per cent. and 37 per cent.).

Earlier data upon the same subject are available for comparison only with regard to the United States, Great Britain (without her colonies), and Germany; the figures are presented below:

(1 = \$1,000,000.)

YEARS.	UNITED STATES.			GREAT BRITAIN.			GERMANY.		
	Coinage.	Recoinage.	Ratio.	Coinage.	Recoinage.	Ratio.	Coinage.	Recoinage.	Ratio.
1873-1881.....	464.1	130.5	28	83.3	41.2	49	316.1	21.7	7
1882-1890.....	273.1	76.9	28	126.0	68.6	54	182.7	47.8	26
1891-1899.....	572.4	152.9	27	295.8	199.0	67	243.8	84.0	34
Total.....	1,309.6	359.3	28	505.1	308.8	61	742.6	153.5	21

The ratio of recoinages to total coinage in the United States, when taken by novennial periods, is remarkably constant, notwithstanding violent fluctuations from year to year.

No such regularity is established by the figures for Great Britain and Germany. In both countries the ratio of recoinages is growing; in Great Britain more than one-half of the coinage is mere recoinage. The dissimilarity of the tendencies exhibited

by the figures for each country makes their general application to all nations open to question. Before dismissing the figures, let us first ascertain the place occupied by these three countries among the gold-standard nations. In the table below we divide the entire period into two unequal parts: 1892-1899, for which the data cover 97 per cent. of the world's coinage and recoinage, and 1873-91, where the information is confined to the three nations named:

(1=\$1,000,000.)				
Nations.	1873-1891. Coinage.	1892-1899.		
		Coinage.	Recoin- age.	Per Cent.
All .....	2,838	2,293	840	37
The three named: Amount.....	1,445	1,036	418	40
Per cent.....	51	45	...	..

It appears from the foregoing table that throughout both periods the three nations named held practically the same place among the gold-standard nations of the world, controlling as they did about one-half of the world's coinage (51 and 45 per cent. respectively). Furthermore, the ratio of recoinages in these three countries, within the period 1892-99, was practically the same as throughout the world (40 and 37 per cent. respectively). Whether this similarity extended to the previous period, 1873-91, is a matter of conjecture; the aggregate coinage and recoinage for those three countries are presented here for reference:

(1=\$1,000,000.)						
Years.			Coinage.	Recoinage.	Per Cent.	
1873-1881	-	-	863.5	193.4	22	
1882-1890	-	-	581.8	193.1	33	
1891-1899	-	-	1,112.3	435.9	39	
Total	-	-	2,557.3	822.4	32	

The average ratio with regard to these three nations for the 27-year period 1873-99 is approximately the same as that

found with regard to the five nations selected above for the eight-year period 1892-99 (30 per cent.); the ratio increases, however, from one novennial period to another. Still, it must be remembered that the figures for the first period were affected, in the United States, by the Act of 1873 withdrawing from circulation all worn coin, and in Germany by the monetary reform of 1873; as a result of the latter there was coined in the course of the same year a sum equal to \$140,500,000, *i. e.*, about 44 per cent. of the total amount coined within the first novennial period; the next year all gold coins of the several federal states which had been united in the German empire were retired from circulation and recoinced into imperial currency. To eliminate these factors from our calculation the following table is prepared, embracing the 25-year period 1875-1899:

		(1 = \$1,000,000.)		
Years.		Coinage.	Recoinage.	Per cent.
1875-1883	- -	711.0	157.8	22
1884-1891	- -	531.3	177.1	33
1892-1899	- -	1,036.0	418.0	40
Total	- - -	2,278.3	752.9	33

Comparing the two tables last preceding we observe a remarkable resemblance of the ratios, which indicates that the effects of accidental factors, which we have endeavored to eliminate, have been mutually neutralized in the total for a larger period. This would seem to justify the application of the ratios thus obtained to the other countries of the world; the error would probably not be very great.

## VI.

The last item to be considered is old jewelry, which is also utilized as material for coinage. This item is of greater importance than worn domestic coin. During the 28-year period 1873-1900 (fiscal years) there was deposited at the mints old jewelry of the value of \$63,245,373, whereas the total amount of worn domestic coin deposited was only \$52,963,089. If, further, the years 1873 and 1874 are excluded, for reasons stated above, the deposits for 1876-1900 appear to have been as follows:

Old jewelry	- - - -	\$61,816,801.41
Worn domestic coin	- - - -	19,570,773.87

That is to say that under normal conditions old jewelry supplied thrice as much material for coinage as worn domestic coin. This is quite natural, since the wear and tear of jewelry consists in changes of shape, which is not the case with coin. The ratio of old jewelry to the total amount of coinage for the period 1873-1900 is equal to 4.6 per cent. Annual figures are subject to violent fluctuations. In the table below they are given, together with averages per 1,000 population, the population figures being from the *Statistical Abstract* of the United States. The sale of old jewelry presumably bears some relation to the consumption of jewelry by the people, and that is determined partly by population.

FISCAL YEARS.	OLD JEWELRY DEPOSITED AT THE MINTS.	
	Total.	Per 1,000 Population.
1873.....	\$ 774,218	\$19
1874.....	654,353	15
1875.....	724,625	16
1876.....	681,819	15
1877.....	837,911	18
1878.....	907,932	19
1879.....	837,751	19
1880.....	1,176,505	23
1881.....	1,343,480	26
1882.....	1,770,166	34
1883.....	1,858,107	35
1884.....	1,864,769	34
1885.....	1,869,363	33
1886.....	2,069,077	36
1887.....	2,265,219	39
1888.....	2,988,750	50
1889.....	3,526,597	58
1890.....	3,542,013	53
1891.....	4,035,710	63
1892.....	3,636,603	56
1893.....	3,830,176	57
1894.....	3,118,421	46
1895.....	3,213,809	48
1896.....	3,388,622	46
1897.....	2,810,248	39
1898.....	2,936,943	39
1899.....	2,964,683	39
1900.....	3,517,540	46
Total.....	\$63,245,373	..

The same by quadrennial periods :

YEARS.	TOTAL COINAGE.	OLD JEWELRY MELTED AT THE MINTS.		
		Value.	Ratio.	
	1 = \$1,000.	1 = \$1,000.	To Coinage, Per Cent.	To 1,000 Population.
1873-1876 .....	157,425	2,835	1.8	\$ 65
1877-1880 .....	194,022	3,860	2.0	79
1881-1884 .....	232,017	6,836	2.9	129
1885-1888 .....	109,696	9,192	8.4	158
1889-1892 .....	107,245	14,741	13.8	230
1893-1896 .....	232,325	13,551	5.8	197
1897-1900 .....	352,396	12,229	3.5	163
Total.....	1,385,126	63,245	4.6	...

It appears from the preceding table that the consumption of old jewelry as material for coinage increased both in amount and ratio from period to period until 1889-92, and has since then been declining. This movement has gone apace with the rise and fall of the ratio to population, but has borne no relation to the volume of coinage. Thus in 1885-88 and 1889-92 the amount coined declined as compared with previous quadrennial periods, still the quantity of jewelry melted increased; and conversely, during the following periods, 1893-96 and 1897-1900, the amount of coinage increased, still the quantity of old jewelry melted at the mints decreased.

To make these figures comparable with those given before, the following table is offered :

FISCAL YEARS.	TOTAL COINAGE.	OLD JEWELRY MELTED.		
		Amount.	Ratio.	
	1 = \$1,000.	1 = \$1,000.	To Coinage, Per Cent.	To 1,000 Population.
1873-1881 .....	430,181	8,038	1.9	\$18
1882-1890 .....	310,546	21,754	7.0	41
1891-1900 .....	644,300	33,452	5.2	48

The tendency noted above can be observed in this table as well: the absolute consumption of old jewelry increased during

the second period, while the volume of coinage decreased ; and the relative consumption expressed by the ratio to coinage decreases during the third period, while absolute consumption and its ratio to population increases.

Taking the period beginning July 1, 1893, and ending June 30, 1900, as the nearest approach to the period 1892-99,<sup>1</sup> the consumption amounts to \$25,780,000, or 4.4 per cent. of the total amount coined, which closely approximates the average ratio for the 28-year period (4.6 per cent.). This shows that the period 1892-99 is typical for the United States. This is the period for which the most complete data are available with regard to foreign countries.

Information concerning the quantity of old jewelry used as material for coinage is available only for the United States. Still it has been shown that the consumption of jewelry for that purpose bears some relation (though undefined) to population.

In the table below a comparison is made of the per capita coinage within the eight-year period 1892-99 in the United States and in the following foreign countries: Great Britain with her colonies, except India and Canada ;<sup>2</sup> Austria-Hungary ; Germany ; Russia ; France ; Japan ; and the Netherlands.

				Census Population, Millions.	Coinage. Amount. Per Capita. (1 = \$1,000,000.)	
United States	-	-	-	76.3	543	\$7.12
Other countries	-	-	-	364.3	1,750	4.80
Total	-	-	-	440.6	2,293	5.20

It appears from this table that the amount of gold coined per capita in the United States has been greater than in other countries. It is therefore probable that the consumption of old jewelry by the mints has not been greater abroad than in the United States. At the United States rate for the eight-year period, \$360 per 1000 population, the total consumption would

<sup>1</sup> It is to be regretted that the arrangement of the tables of the Bureau of the Mint is not always uniform ; some figures are given by calendar years, others by fiscal years, which is a serious drawback in making comparisons.

<sup>2</sup> Gold coinage in India is insignificant, there is none in Canada, and United States gold circulates alike with sovereigns.



amount to \$131,000,000, which is 7.5 per cent. of the volume of their gold coinage, *i. e.*, considerably higher than the corresponding United States ratio.

It has been seen, on the other hand, that the ratio of recoinage in the United States, for the period under consideration, was equal to 25 per cent., and for the three novennial periods considered above it averaged 28 per cent, while for five principal countries it averaged 30 per cent., fluctuating from 28 to 32 per cent. from one quadriennial period to another. From the absence of wide differences between the United States and other countries, as far as the ratio of recoinage is concerned, it may be surmised that the rate of consumption of old jewelry by the mints is about the same in other countries as in the United States. Assuming the United States ratio, 4.4 per cent., to be general for all countries, the sum of \$77,000,000 is obtained as the consumption of old jewelry in the countries named, for 1892-1899.

These calculations are, obviously, purely speculative; still, in the absence of more reliable data, they may be of some assistance, as will be shown further.

## VII.

Having considered all items in succession which serve as materials for the mints, we may now draw the balance of the world's production and consumption of gold. Let us take the period 1892-99, for which the information is fairly complete.

If we add to the gold product of the period the quantity of old coin recoined and old jewelry melted, and deduct from the sum the amount coined during the period, the balance will represent the entire stock of new gold available for industrial use. The balance sheet follows below:

Gains.		Millions of dollars.	
Production	- - - - -	-	1,716
Recoinage:			
(a) in eight principal countries	-	-	840
(b) in all others	- - - - -	-	26
Old jewelry melted at United States mints			26
Total	- - - - -	-	2,608

Losses.	
Coinage:	
(a) in eight principal countries	- 2,293
(b) in all others	- 66
Total	- 2,359
Balance	- 249
	2,608

According to this calculation, there was \$249,000,000 of gold left for industrial consumption. The chief source of error is the unknown consumption of old jewelry at the mints of the world. The only authentic information is to the effect that the consumption of old jewelry at the United States mints amounted to \$26,009,000. Allowing from \$77,000,000 to \$131,000,000 as shown above, for the consumption of all other countries, we must add an equal amount to the stock available for industrial consumption which would give a total from \$326,000,000 to \$380,000,000.

On the other hand, there is some exaggeration in the preceding account; a portion of the new gold product must have gone to increase the stock of gold bullion in the treasuries and banks of issue. What this amount was could not be learned; it is known that from December 31, 1891, to December 31, 1899, the stock of gold coin and bullion in the European banks and treasuries increased by \$362,000,000; still, how much of it was coin and how much bullion, what portion of the latter represented new gold and what portion was obtained by melting old jewelry, could not be ascertained. One thing is certain, however, viz., that if it were possible to determine the increase of the stock of gold bullion derived from the new product, this would reduce the balance found above.

Lastly, the total of the world's production is subject to error, which has been estimated at 3 per cent.; this would add \$51,000,000 both to the world's production and to the stock for industrial consumption, thus bringing up the maximum stock to \$431,000,000, or 24 per cent. of the world's production. This figure is doubtless exaggerated; it is therefore safe to assume that

within the period under consideration the industrial consumption absorbed *less than one-quarter* of the total product of gold mining; *over three-quarters* of the gold product went into the channels of circulation.

In other words, it is an indisputable proposition that during the last decade of the nineteenth century gold was used chiefly and primarily as money, and next, to but a small degree, as an ornament, or as raw material in the industrial arts, surgery, science, etc.

There are no reliable data which would permit to carry this calculation further back than 1892.

### VIII.

The information is more complete for the United States. To make the results comparable with those reached above let us take first the same eight-year period, 1892-99.

When one country is considered, a new item must be introduced into the calculation, viz.: imports and exports of gold bullion and ore. The figures are given in the following table:

1= \$1,000,000.)

Years.	Imports.	Exports.	Net Imports (+) or Exports (-).
1892 .....	3.8	0.4	+ 3.4
1893 .....	15.2	0.5	+ 14.7
1894 .....	3.1	0.4	+ 2.7
1895 .....	14.7	17.8	- 3.1
1896 .....	23.4	17.4	+ 6.0
1897 .....	10.8	12.6	- 1.8
1898 .....	53.0	0.3	+ 52.7
1899 .....	24.0	0.3	+ 23.7
Total .....	148.0	49.7	+ 98.3

Another item on which no information is available with regard to foreign countries is the increase of the stock of gold bullion in the treasuries, banks of issue, etc. In this country practically all gold bullion is kept in the treasury (including the mints and assay offices); private individuals and banks may deposit their bullion at the treasury or at the mints and receive gold coin in exchange. The stock of gold in the hands of jew-

elers, dentists, etc., is probably very small, as it would be unprofitable to keep large quantities of gold bullion on hand, when it can be exchanged for coin and deposited at a small rate of interest with some bank, which assumes the risk of safe keeping.

Thus the increase of the stock of gold bullion in the treasury vaults practically represents the total increase in the United States. The stock of gold bullion in the United States amounted :

On January 1, 1900, to	- - - - -	\$143,078,146
On January 1, 1892 to	- - - - -	83,575,643
Increase	- - - - -	<u>\$59,502,503</u>

Still, this amount represents more than the increase of the stock of bullion from the new gold product ; the bullion on hand on January 1 of any year includes the metal melted from foreign and domestic coin and old jewelry ; the difference between the stock on hand on any two dates must therefore include the increase derived from all the sources just mentioned. To eliminate this increase, we refer to the classification of the deposits by origin ; of the total received within the period under consideration, viz. \$764,00,0000, there was deposited in bullion \$592,000,000, or 77 per cent. At this rate the increase of stock of bullion in the strict sense, *i. e.*, by gold received in bullion, is estimated at \$46,000,000.

We may now draw the balance :

Gains.		Millions of Dollars.
Production of the United States	- - - - -	401
Net imports	- - - - -	93
Melted at the mints :		
(a) Domestic and foreign coin	- - - - -	138
(b) Old jewelry	- - - - -	26
Total	- - - - -	<u>663</u>
Losses.		
Coinage	- - - - -	543
Increase of the stock of bullion	- - - - -	46
Total	- - - - -	<u>589</u>
Balance	- - - - -	<u>74</u>
		663

Thus there was left for industrial consumption \$74,000,000, *i. e.*, 18.5 per cent. of the total production of the United States for the same period; if the net imports are added to the production, the distribution of the total new product by modes of consumption will appear as follows:

	<i>x</i> = \$1,000,000.	Per cent.
Coinage (deducting recoinage)	- - 379	76
Industrial consumption	- - - 74	15
Increase of the stock of bullion	- - 46	9
Total	- - - 499	100

The only source of error in this calculation is the estimated increase of the stock of bullion. If this item is omitted, the stock available for industrial consumption would rise to \$120,000,000, *i. e.*, 24 per cent. of the aggregate production and imports. This maximum coincides with that found for the world's consumption,

The Bureau of the Mint estimates annually the industrial consumption of gold from the quantity of gold bars sold by the mints and assay offices and private refineries. The total for 1892-99, \$71,000,000, differed only by \$3,000,000 from that obtained by our calculation; the discrepancy amounted to \$375,000 a year, or 3 per cent. Both estimates appear to be very close.

The reports contain no data earlier than 1884 available for a similar calculation. The imports and exports of gold in 1884-91 were as follows:

(1 = \$1,000,000.)			
Years.	Imports.	Exports.	Net Imports(+) or Exports (-).
1884 .....	8.7	23.1	-14.4
1885 .....	3.7	0.8	+ 2.9
1886 .....	17.9	27.9	-10.0
1887 .....	19.5	1.1	+18.4
1888 .....	1.7	25.9	-24.2
1889 .....	1.7	40.5	-38.7
1890 .....	2.6	16.3	-13.7
1891 .....	11.0	4.6	+ 6.4
Total .....	66.8	140.2	-73.4

The stock of bullion in the treasury amounted :

On January 1, 1892, to	-	-	\$83,575,643
On January 1, 1884, to	-	-	65,667,190
Increase	-	-	\$17,908,453

The total deposits at the mints within the same time amounted to \$433,000,000, of which there were \$334,000,000 in bullion, *i. e.*, 77 per cent., the same as in 1892-99. At this rate the estimated increase of the stock of bullion was \$14,000,000.

Upon the preceding data we draw our balance :

Gains.		Millions of Dollars.
Production of the United States	-	265
Melted at the mints :		
(a) Domestic and foreign coin	-	74
(b) Old jewelry	-	24
Total	-	363
Losses.		
Coinage	-	207
Increase of the stock of bullion	-	14
Net exports	-	73
Total	-	294
Balance	-	69
		363

Thus the balance available for industrial consumption amounted to \$69,000,000, or 26 per cent. of the total domestic production for the period under consideration.

The total industrial consumption for 1884-91, obtained from the estimates of the Bureau of the Mint, amounted to \$69,800,000, differing from the former total by a little over 1 per cent.; as the estimates are not reliable below \$1,000,000, this discrepancy may be treated as a negligible quantity.

In the following table the product of 1884-91 is distributed by modes of consumption :

	1 = \$1,000,000.	Per Cent.
Coinage (deducting recoinage)	109	41
Exports	73	28
Industrial consumption	69	26
Increase of the stock of bullion	14	5
Total	265	100

The only source of error, as stated, is in the last item; if it is excluded from the calculation the maximum industrial consumption will be raised to 31 per cent., while 69 per cent. was either coined or exported abroad, presumably to cover balances in international trade, where assayed gold bars are used as a sort of international currency, as it were. If the exports are deducted from the total, so as to leave the domestic product consumed at home, the maximum industrial consumption will reach 43 per cent. Thus we see that in 1884-91, as well as during the subsequent period, the chief use of gold was to satisfy the want of the community for money symbols. In the following table a comparison is made of both periods:

(1 = \$1,000,000.)

PERIODS.	PRODUC- TION.	INDUSTRIAL CONSUMPTION.		
		Total.	Annual Average.	Ratio to Production.
1884-1891 .....	265	69	8.6	Per Cent. 26
1892-1899 .....	401	74	9.2	13.5
Increase .....	136	5	0.6	4

We observe that while the eight-year product increased from one period to the other by \$136,000,000, *i. e.*, by one-half, the industrial consumption increased only by \$5,000,000, or \$600,000 per year, which is but 4 per cent. of the total increase. If it is remembered that the possible error for the last eight-year period may be as high as 5 per cent., and that fractions of \$1,000,000 are, in general, inaccurate, it may be reasonably maintained that *the enormous increase of the gold production has not affected the average consumption of gold in the industrial arts*, which did not change from one eight-year period to the other. The entire increase went to swell the volume of gold in circulation.

This conclusion agrees with what has been shown above in relation to Great Britain.

Inasmuch as the average industrial consumption has been a constant quantity, its ratio to the total production has necessarily fallen with the increase of production.

IX.

In the preceding calculations the amount of industrial consumption has been obtained by indirect process. As early as 1879 the Bureau of the Mint made an effort to study the subject by applying directly to manufacturers using gold as material. The result was unsatisfactory; the effort was repeated in 1880, 1881, 1883, 1885 and again in 1899. The latest information received is fairly complete and reliable. The collection of such statistics is attended with great difficulties. To begin with, the information is obtained from a very large number of persons; in 1899, 29,948 replies were received to interrogatories sent out by the Bureau. It is extremely difficult, often impossible, to avoid duplications, inasmuch as the product of one manufacturer is used as material by another. On the other hand, aside from newly mined gold, old gold—remelted jewelry, domestic and foreign coin—is used to a considerable extent in the industrial arts. Moreover, even gold bars specially manufactured for the trade by the mints or private refineries are made partly from old metal. Therefore the replies giving the quantity of mint and private refinery bars purchased are misleading, unless compared with the records of sales of mint bars and the available data on the sale of private refinery bars. Still, the two annual totals are not quite identical, inasmuch as a portion of the gold consumed in the arts during the early part of the year 1899 must necessarily have been melted and refined during the previous year. Thus the sum of purchases cannot agree with the sum of sales.

Moreover, the fluctuations of the stock of bullion, though of little effect when taken for a period of years, may very materially affect the results of one year; the figures for one year are therefore to be accepted with great caution.

With these qualifications let us consider the results obtained by the Bureau. According to information received, the materials used in the arts are classified as follows :



Years.				Bars and Bullion. Per Cent.	Old Jewelry and Coin. Per Cent.	Total Per Cent.
1880	-	-	-	64	36	100
1881	-	-	-	61	39	100
1883	-	-	-	57	43	100
1885	-	-	-	64	36	100
1899	-	-	-	81	19	100

The results of 1899 differ widely from those obtained previously, the average ratio of consumption of old material has declined by one-half. The difference may be due to the fact that the data previously obtained were not as complete as those secured in 1899. On the other hand, the substantial uniformity exhibited by the ratios for 1880, 1881, 1883, and 1885 argues for their accuracy. It is therefore possible that the growth of the gold production may have since brought about an increase of the proportion of new gold used. An increase from 64 to 81 per cent. in the amount of industrial consumption, when compared with the total production of the United States, would mean only about one-fourth or one-fifth of that rate. *i. e.*, about 5 per cent.; with the present methods of estimating the gold production such differences would escape observation.

Let us now compare the figures for 1899:

		From Mints and Assay Offices.	From Private Refineries.	Total.
Sold to the trade	-	\$14,685,642	\$4,632,218	\$19,317,860
Bought by the trade	-	14,259,412	3,832,337	18,091,749
Discrepancy	-	\$ 426,230	\$ 799,881	\$ 1,226,111

Still, the total sales reported by private refineries included \$2,753,362 of mint and assay office bars sold by them to the trade in 1899; how much of it had been bought by the refineries within the same year and should, therefore, be deducted to avoid duplications, does not appear. If the entire amount is deducted, there will be an excess of purchases over sales amounting to \$1,527,251, or 9 per cent. of the sales. Considering each item by itself, we find that the excess of sales of government bars over purchases amounted to \$436,230, or 3 per cent. of the purchases; the excess of sales over purchases from private refineries

amounted to \$799,881, or 21 per cent of the purchases. Still, if the sales of government bars from private refineries are deducted, there is an excess of purchases over sales amounting to \$1,953,481, *i. e.*, the amount of all purchases is nearly double that of the sales.

It is possible that the wording and classification of the interrogatories may have misled the correspondents of the Bureau; bars bearing the government stamp, but bought from a private refinery, may in many cases have been reported as private refinery bars. On the other hand, the information of the Bureau relating to private refineries is incomplete, coming from only sixty refineries, which have since all been included in the smelting combination; still the latter has, according to its own statement, not concentrated all the refineries.

The error in the total of industrial consumption is thus somewhere between + \$1,226,111 and - \$1,527,251, or between + 7 per cent. and - 8 per cent. of the total purchases reported by the correspondents of the Bureau.

From the amount thus obtained must be deducted the value of old metal used at the mints and private refineries in the manufacture of bars. Of the amount of \$16,564,497 sold in bars during the year 1899, only \$13,267,287 was made of newly mined domestic gold. At this rate, the total reported sum of purchases, \$18,091,749, contained only \$14,500,000 of new gold. To this should be added native grains and nuggets which are bought in small quantities by jewelers directly from miners, and therefore escape all estimates of the Bureau. The replies received from consumers show a total of \$539,362. This brings up the industrial consumption of new gold in 1899 to \$15,000,000, or 21 per cent of the production of 1899. The average rate obtained above for 1892-99 was 18.5 per cent. Thus the percentage ratio, based upon replies from consumers, differs very little from the ratio found by the other two methods used above.

It might seem that comparisons would be more proper with ratios found by former methods for the year 1899, rather than

for the eight-year period 1892-99. In reality, such comparisons would be of no value, since all the elements of those calculations are subject to wide fluctuations from year to year; since the annual production and coinage exceed many times the industrial consumption, a small fluctuation of, say, 5 per cent. in either of the former might affect the latter to the extent of 50 per cent.

The substantial agreement of the results arrived at by three different methods vouches for their accuracy. In 1892-99 the ratio of industrial consumption to coinage in the United States has been shown to be, substantially, the same as throughout the world. On the other hand, it has been shown that during the preceding period, 1884-91, the ratio of industrial consumption in the United States did not materially differ from that found for the subsequent period. It may, therefore, be assumed that the condition ascertained for the United States was universal at the time stated.

#### X.

The preceding examination of the statistics of gold production and consumption justifies a few conclusions, which may now be briefly stated.

It has been shown that fairly complete and reliable statistics of the world's production and consumption of gold are available only since 1892; earlier figures are fragmentary and insufficient for scientific purposes.

The agitation over the currency question has rendered a valuable educational service by stimulating systematic statistical inquiry. In time it will be possible to treat the subjects of production, coinage, and consumption of gold by decennial periods. Annual figures are subject to violent fluctuations; any attempt to base conclusions upon the figures for one year must be misleading.

One proposition has been firmly established, viz., that within the last decade or two of the nineteenth century by far the larger part of the gold production, from two-thirds to three-quarters, if

APPENDIX.  
COMPARATIVE TABLE OF THE GOLD COINAGE AND RECOINAGE OF THE PRINCIPAL NATIONS OF THE WORLD.  
(1=51,000,000.)

NATIONS.	1892.		1893.		1894.		1895.		1896.		1897.		1898.		1899.		Total.	
	Coin- age.	Re- coin- age.	Coin- age.	Re- coin- age.	Coin- age.	Re- coin- age.	Coin- age.	Re- coin- age.	Coin- age.	Re- coin- age.	Coin- age.	Re- coin- age.	Coin- age.	Re- coin- age.	Coin- age.	Re- coin- age.	Coin- age.	Re- coin- age.
British empire.....	98.5	84.5	77.2	30.7	62.8	17.8	32.2	18.7	58.0	12.6	45.0	13.4	67.7	10.0	90.8	8.8	553.1	106.5
Russia.....	0.6	2.3	0.0	2.3	0.0	0.0	28.6	0.0	0.0	0.0	170.6	128.0	135.8	95.0	104.5	40.0	544.7	272.9
United States.....	34.8	7.1	57.0	14.3	79.1	3.1	59.6	2.3	47.0	17.3	76.0	15.1	78.0	58.4	111.3	20.5	543.2	138.1
Germany.....	38.9	1.0	26.3	0.4	37.4	7.3	21.6	12.0	25.1	0.1	30.1	15.6	42.7	27.6	33.6	9.8	290.7	83.7
Austria-Hungary.....	14.0	3.4	55.9	44.8	42.4	14.6	18.2	16.0	33.9	15.6	33.6	18.9	14.4	7.4	5.0	1.4	215.4	122.1
France.....	0.9	5.2	9.8	0.7	1.0	1.5	20.8	0.7	21.7	0.2	42.7	1.0	34.2	1.0	10.4	10.2	142.4	22.3
Japan.....	1.3	1.3	.....	.....	1.6	.....	1.5	.....	1.1	.....	31.6	3.0	16.0	0.3	8.7	1.0	63.1	4.3
Netherlands.....	.....	.....	.....	.....	0.1	.....	0.1	0.1	.....	.....	.....	.....	0.4	0.1	0.7	.....	1.3	0.2
Total.....	159.0	101.2	229.8	90.9	226.0	216.6	216.6	50.7	186.8	54.8	430.5	195.9	389.2	201.6	455.0	100.7	2,292.9	840.1

<sup>1</sup> The excess of the amount of coin melted in 1899 over the total coinage for the year is explained by the fact that old coin melted in one year is received in later years.

not more, found its way into the channels of circulation, and only a small portion was consumed in the arts.

A comparison with the earlier estimates of the late Dr. Soetbeer leads to the conclusion that the same condition has prevailed since the discoveries of gold in California and Australia.

The annual average production by decennial periods from 1851 to 1880 was between \$115,000,000 and \$133,000,000; the average for the last decade of the nineteenth century was \$210,000,000. The industrial consumption during the same period was found to be less than one-quarter of the total production, or less than \$52,000,000. Assuming the consumption of gold in the arts to have been the same in amount fifty years ago as today (which is impossible), it would still have been only from 39 per cent. to 45 per cent. of the total production of those days. In reality, the absolute quantity, and accordingly the ratio, of gold consumed in the arts must have been considerably less.

Thus, during the second half of the last century, since the opening of the great gold streams from California and Australia, gold has been used chiefly as money, and to but a small degree as a commodity. The old proposition that gold is a commodity and derives its value primarily from its use as a commodity, may or may not have been true in the eighteenth and during the first half of the nineteenth century—to prove or disprove it for that time there are no statistical data; surely it does not hold today.

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## NOTES.

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### PROSPERITY IN AGRICULTURE.

ALTHOUGH last year's corn crop was the smallest for twenty years, its value is reported by the Agricultural Department to be one hundred million dollars greater than that of any previous crop, and four hundred million dollars more than any corn crop grown between 1893 and 1899 was worth. But the statistics of the Agricultural Department are at best only careful guesswork, and it would be hard to convince the farmers that the 1,522,000,000 bushels of corn grown in 1901 was worth twice as much to them as the 2,283,000,000 grown in 1896, yet so it is set down in the official reports. True, the cattle, hogs, and sheep, to which the corn is fed, bring much higher prices than they did five years ago, but to make the corn crop worth twice as much to the farmers the price of cattle and hogs would need to be more than twice as much per pound, because the smaller crop certainly cannot produce as many pounds. Quotations, however, show hogs to be less than twice as high now as they were in the years of depression while cattle and sheep are only about one-third higher in price, so it is hard to see how the small crop has a farm value as great as that assigned to it by the official statisticians.

An examination of the market reports shows that the large crop of 1896 sold in the Chicago markets at prices ranging from twenty to thirty cents per bushel, while last year's crop has sold in the same market at fifty-five to seventy cents per bushel. That small part of the corn crop which reaches the Chicago market is popularly supposed to fix the price of the entire crop, and at any given time in any given locality farmers buy and sell corn to each other on the basis of the Chicago price. If the market price is high enough to discourage the feeder, or if for other reasons he does not have confidence enough to feed corn to his cattle and hogs, the supply of corn coming to the public market will be increased and the price will decline. An examination of statistics, however, does not indicate that price is the controlling factor in determining whether a farmer will sell his corn direct or feed it to live stock, and thus market it indirectly at the prices paid. In

the years of depression, five or six pounds of beef paid for a bushel of corn; at the prices now ruling eight or ten pounds of beef bring the farmer no more than a bushel of corn, yet the amount sent to the Chicago market this year has been so small as to make the most successful gamblers in the country think it worth while to run a corner, and they succeeded in forcing the price to 90 cents per bushel. The following official statistics<sup>1</sup> show clearly the effect of the depression upon the farmers' most important crop:

Year.	Corn Product in Bushels.	Price per Bushel.	Total Farm Value.
<b>Years of business activity.</b>			
1890.....	1,489,970,000	50.6 cents.	\$754,433,451
1891.....	2,060,154,000	40.6 "	836,439,228
1892.....	1,682,464,000	39.4 "	642,146,630
1899.....	2,078,143,000	30.3 "	629,210,110
1900.....	2,105,102,000	35.7 "	751,220,034
1901.....	1,522,000,000	60.1 "	921,000,000
Average.....	1,822,972,000	42.7 "	755,741,575
<b>Years of depression.</b>			
1893.....	1,619,496,000	36.5 "	596,625,627
1894.....	1,212,770,000	45.7 "	554,719,162
1895.....	2,151,138,000	25.3 "	544,985,534
1896.....	2,283,875,000	21.5 "	491,006,967
1897.....	1,902,967,000	26.3 "	501,072,952
1898.....	1,924,984,000	28.7 "	552,023,428
Average.....	1,849,971,000	30.6 "	540,072,278

The crops average a trifle larger during the years of depression, but the price is 12.1 cents per bushel lower, and the average value of the crop \$215,669,297 less than in the years of prosperity.

While no one claims absolute accuracy for the official statistics all who are familiar with agricultural conditions, accept them as a fair approximation to the existing facts, and there is a body of agricultural data, complete and correct which show even more strongly than the official reports the unevenness of the agricultural industry. The records of the pedigree associations show how many cattle are registered each year, and the auction sales indicate the prices at which the fine breeding cattle are sold. The shorthorn cattle are more numerous than all the other beef breeds together. So conclusions drawn from a study of their records may be accepted as indicative of the trend of affairs in the breeding of good beef cattle.

<sup>1</sup> From *Statistical Abstract*, 1901, p. 370.

STATISTICS OF SHORTHORN CATTLE RECORDED AND SOLD 1891-1901.<sup>1</sup>

Year.	No. of Pedigrees Recorded.	No. of Cattle Sold at Auction.	Average Price Per Head.
1891.....	14,298	1,106	\$118.26
1892.....	11,648	939	113.04
1893.....	9,003	808	91.60
1894.....	7,026	750	81.31
1895.....	6,827	1,010	91.41
1896.....	9,773	898	91.76
1897.....	13,964	1,728	109.32
1898.....	26,474	1,620	145.84
1899.....	35,606	2,783	152.34
1900.....	51,314	4,099	191.01
1901.....	50,377	4,045	280.91
Six months of 1902...	.....	3,006	301.26

By these records we see that more than seven times as many cattle are being recorded, more than five times as many are being sold, and the prices are over three times as high as during the period of depression. In this instance demand seems to grow rather than decline as price rises. This is what we should expect if the trade in pedigreed cattle is a speculative movement—if the cattle are bought merely to sell to someone else at a higher price. A small part of the trade may be explained in this way, but the bulk of the sales are made to farmers for breeding purposes. At present they believe it is worth while to improve their live stock, while in the years of depression they did not think it worth while to take care of and record what they owned, and they could hardly be induced to purchase additional stock no matter how low the price at which the cattle were offered.

Why does the farmer today have the confidence which leads him to pay \$300 per head for breeding cattle, when five years ago he would not pay \$100 for cattle equally good? Investments in good cattle made between 1894 and 1898 at the prices then ruling have proven extremely profitable, whether made for breeding purposes or to improve the feeding cattle, but even the most optimistic breeders did not avail themselves of their opportunities, and it was impossible to get new men to enter the business. With prices at a level where the investment is a hazardous one, hundreds of new men are entering the lists as purchasers and are building up herds of pedigreed cattle. So long as men think it worth while to form new herds or to add to existing herds, increasing numbers of cattle can be sold at rising prices. When purchasers

<sup>1</sup> From *Breeder's Gazette*, and Coburn's *History of Shorthorn Cattle*.



lose their confidence in the future of the industry the number bred, registered and sold will decline, and prices will fall. The price of good beef cattle is the remote basis on which the trade in fine breeding cattle rests, but the time elapsing between the investment and the realization of results, and the inability of the investor to forecast the future, make the physiological element, the way a man gets confidence and loses it, the most important factor in explaining the ups and downs in the fine cattle business.

The time element is less important in the raising of beef cattle for the market, but even that is a three or four-year process, and the facts above set forth indicate that in both industries the inability to forecast the future for the requisite time, makes belief in what is going to happen a more potent factor in making prices than what is actually happening or is to happen.

W. H.

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#### AN OLD ACCOUNT BOOK.

THERE has recently come into the hands of Professor C. R. Henderson, of the Department of Sociology of this University, an old account book, containing a series of miscellaneous accounts extending from 1794 to 1796. The account was opened at Philadelphia on August 1, 1795, but a few items are carried forward from the preceding year, and entered. Following these early records, there is another series of accounts, extending from 1847 to 1851, kept by J. & W. H. Levering, meat merchants, who found the journal in an old paper mill in Philadelphia, and used the blank space. The book belongs to Mr. W. H. Levering, LaFayette, Indiana.

The leaves of the journal are stamped with the name "J. Whatman." It seems impossible from internal evidence to arrive at any definite conclusion as to the identity of the earlier accountant; he was apparently a shipping and commission merchant in Philadelphia, having business transactions with a great many different individuals and firms. It is possible that by an examination of the corresponding accounts of these other firms, if accessible, or by an examination of the registration list of the vessels clearing port at that time, the identity of the accountant might be established. His work has been neatly and even elegantly done, and the journal is in every respect remarkably well preserved.

The nature and variety of the material, as well as the early date of

the period covered, make the earlier series of this account book of unusual interest both to the historian and to the student of economics. Some of the individuals and firms with whom the accountant transacted business, we are able to identify reasonably well by reference to the current histories of Philadelphia. He had important business transactions with Willings & Francis, J. and R. Waln, and J. Hollingsworth & Co., whom we find mentioned in Scharf & Westcott<sup>1</sup> as shipping merchants of near that time. It would probably be very easy to identify many of the other names by reference to the city directory of Philadelphia for 1795 and 1796.<sup>2</sup>

Numerous entries are made of duties paid to Sharp Delaney, whom we find to have been the second customs officer at Philadelphia after the Revolution; appointed first as a state customs officer, and then upon the passage of the tariff act of 1789 made United States customs officer at Philadelphia.<sup>3</sup>

In a few instances the entries for duties paid are itemized, thus furnishing illustrations of the tariff rates of the period, and enabling us to compare with the records which we have.<sup>4</sup> The duty on coffee is specified at 5 cents per pound, and on sugar at  $1\frac{1}{2}$  cents per pound. There are several instances of "draw back" duties being paid. Many accounts are entered also with reference to the Bank of United States, the Bank of North America, and the Bank of Pennsylvania. The old commercial term "adventure" is used to designate the shipment of a cargo of goods. We have explicit mention of voyages to the following ports: From Philadelphia to Cayenne, St. Eustatius, St. Bartholomew, New Orleans, Leghorn, Jamaica, Hispaniola, and to "Trenedad;" from St. Eustatius to Bermuda, from St. Bartholomew to Halifax; also return voyages from these ports to Philadelphia. One interesting little item reads as follows: "Paid Finley for  $\frac{1}{2}$  yrs. subscription to his paper, two dollars." By reference to Scharf & Westcott<sup>5</sup> we find a note of *Finlay's American Naval & Commercial Register*, established December, 1795, and continued till December,

<sup>1</sup>See SCHARF & WESTCOTT, *History of Philadelphia*, Vol. I, p. 523.

<sup>2</sup>*Ibid.*, p. 485; also WATSON'S *Annals of Philadelphia*, I, p. 258.

<sup>3</sup>See SCHARF & WESTCOTT, Vol. III, pp. 1803, 1805; also Vol. I, p. 454.

<sup>4</sup>For tariff rates of 1795-97 see Appendix A of *Special Report on the Customs Tariff Legislation of the United States* by EDWARD YOUNG, chief of Bureau of Statistics, 1872.

<sup>5</sup>SCHARF & WESTCOTT, Vol. III, p. 1978.

1797. The evident character of this magazine, as suggested by the name, as well as the date of its publication, makes it highly probable that this was the paper to which the entry refers. A debit for "three rounds of beef sent to the principal officers at Cayenne as presents for the good of the concern," suggests a rather naïve way of gaining privileges or immunities. Other items of a like nature occur.

An entry dated September 4, 1794, records the purchase of four lottery tickets. This is calculated to call to mind our change of attitude toward lotteries since that period, not only from a moral but from an economic standpoint as well.<sup>1</sup>

It is interesting to note that prices for the most part, and sums of money occasionally, are recorded, first in pounds, shillings, and pence, Pennsylvania currency, and the totals then transferred to the account columns in dollars and cents; in which process the dollar uniformly equals 7s. 6d. This rather roundabout method of arriving at results is easily understood when read in the light of the following:

In the year 1791 the Bank of North America abandoned the old system of keeping its accounts in pounds, shillings, and pence, and adopted that of dollars and cents. It was suggested that citizens generally should follow its example, and thus was begun a gradual change which finally resulted in the universal adoption of the decimal system.<sup>2</sup>

Here we undoubtedly have an illustration of the gradual way in which the change to the decimal system was made. The mark "\$" is never used, but the word "dollar" or "dollars," or the abbreviations "ds" or "d'lls," are invariably used instead.

The Pennsylvania state currency, or "island money," as it was sometimes called, had evidently recovered from the depreciation which it suffered during the Revolutionary War, in common with the other paper money of the period, though to a much less degree.<sup>3</sup> The rate of valuation of foreign coins and the rates of exchange upon some of the foreign cities are illustrated by several entries. There is one entry of 2,000 livres at the rate of 40 livres per dollar, or at the rate of 2½ cents per livre. Again we have several entries for joes deposited,

<sup>1</sup> For attitude toward early lotteries in the United States see article on "Lotteries" in JOHNSON'S *Encyclopedia*; also SUMNER'S *Financier and Finances of American Revolution*, Vol. I, p. 101, and Vol. II, p. 246.

<sup>2</sup> SCHARF & WESTCOTT, Vol. I, p. 464.

<sup>3</sup> For information concerning this currency before and during the Revolutionary War, see SUMNER, *Financier and Finances of American Revolution*, Vol. I, p. 94: Vol. II, p. 42; see also MACFARLANE, *Pennsylvania Paper Currency*, p. 65.

usually the weight of the coin being given in pennyweights and grains, and then reduced to dollars and cents at the rate of 27 grains per 100 cents.<sup>1</sup> In a series of bills of exchange drawn on the commissioners of the Dutch West Indies at the Hague, we have the guilder estimated at 2s. 9d., Pennsylvania currency, or  $36\frac{2}{3}$  cents.

In a series of bills of exchange drawn on parties in London, sold by our accountant to Willings & Francis, exchange is quoted at  $57\frac{1}{2}$ . The English currency is reduced to Pennsylvania currency by multiplying by  $157\frac{1}{2}$  and then the product is reduced to dollars and cents at the usual rate of 7s. 6d. per dollar. Another striking feature is the frequent resort to exchange of notes for mutual accommodation.

Perhaps the most interesting feature, from the point of view of the economist, is the record left of prices, mostly wholesale, for a great number and variety of commodities. We add below a tolerably complete list of the prices as given, reducing to dollars and cents where necessary. [For the sake of completeness the price is given in some cases where the unit is rather indefinite.]

BEEF.		FLOUR.	
Aug. 1795,	$\frac{1}{2}$ bbl. mess beef, \$11.69	Oct. 1795, best, -	\$13.00 per barrel.
" "	2 rounds beef, - 8.80	" " common,	12.00 " "
Oct. 1795,	3 " " - 14.80	" " "	12.50 " "
" "	beef, per bbl. - 12.00	Feb. 1796,	" 9.75 " "
July, 1796,	" " " - 14.50	July, 1796,	" 12.75 " "
		" "	scraped, 12.25 " "
		" "	fine, - 12.50 " "
		Aug. 1796,	scraped, 10.00 " "
CORN.		MEAL.	
July, 1795,	5s. 9d. or $76\frac{2}{3}$ c. per bu.	May, 1795, cornmeal,	25s. or \$3.33 $\frac{1}{3}$
Oct. "	5s. 3d. or 70c. per bu.	per bbl.	
May, 1796,	7s. 4d. or $97\frac{1}{4}$ c. per bu.	July, 1795,	" 28s. or 3.73 $\frac{1}{3}$
" "	7s. 6d. or \$1.00 per bu.	per bbl.	
		Oct. 1795,	" 28s. or 3.73 $\frac{1}{3}$
PORK.		per bbl.	
Oct. 1795,	per bbl. - - \$14.50	Feb. 1796,	" 25s. or 3.33 $\frac{1}{3}$
" " " "	- - 16.50	per bbl.	
July, 1796,	" " - - 20.00	May, 1796,	" 38s. or 5.06 $\frac{2}{3}$
Apr. 1795,	hams, 11d. or $12\frac{3}{4}$ c. per lb.	per bbl.	
July, "	" " 10d. or $11\frac{1}{4}$ c. " "		
Oct. "	lard, 14d. or $15\frac{1}{4}$ c. " "		
July, 1796,	" $14\frac{1}{2}$ d or $16\frac{1}{4}$ c. " "		

<sup>1</sup> For the legal value put on the foreign coins at that time see *Statutes at Large*, Vol. I, p. 800. An Act Regulating Foreign Coins, etc., 1793.



## BOOK REVIEWS.

*La navigation commerciale au XIX<sup>e</sup> siècle.* By AMBROSE COLIN.  
Paris : Rousseau, 1901. 8vo, pp. viii + 459.

ON April 23, 1838, two vessels, the "Sirius" and the "Great Western," entered the harbor of New York. The arrival of these, the first Atlantic liners, created great excitement in that city. In the less than seventy years since that date the great merchant marines and armored fleets of nations have been built. The early steamers were of wood, the latter ones of steel. This transition did not take place until 1877, when the first vessel built of steel was launched. In 1860 the first triple-expansion engine was created, twenty-five years later the English government adopted it for the propelling of British war vessels. In the seventies marine architecture faced the despairing problem of excessively heavy marine engines with low horse power. The contrast between the engine of that day and the present is vividly set forth in the statement that a 4,000 horse power marine engine of the seventies weighed as much as the present monster engine of 38,000 horse power. Within a period of thirty years these difficulties have been surmounted by the new steel construction, the compound engine, and the screw and the great vessels of today made possible.

In a recital of these facts and many others in the history of shipping M. Ambrose Colin opens his book *La navigation commerciale au XIX<sup>e</sup> siècle*. The book beginning with the introduction already aluded to is divided into three parts. The first deals with the "tools" of navigation ; the second with the revolution in the shipping industry ; and the third with the officers and men in the marine service. In opening part one of the book the author says:

Toute industrie a son outillage propre. Celui de l'industrie des transports maritimes se compose de trois instruments: le navire, le port, la voie, c'est-à-dire, la mer. Le premier est créé par l'homme; le second est un produit de la collaboration de l'homme et de la nature; le troisième apparaît comme un pur don de la nature; et cependant, par son ingéniosité, l'homme a trouvé moyen de la modifier sensiblement à son avantage.

The ship, the port and the sea furnish the text for the chapters of part one.

In part two a somewhat similar analysis gives the commercial, political and legal aspects of the revolution in the building and operation of ships. These phases are dealt with in three chapters by the names just given. Part three is devoted to a short chapter on "Le Personnel," with which the book closes.

The most interesting part of the book is the portion devoted to the relation of ports and ships. In it are shown the vital influences of capital, hungry for interest without ceasing, upon the future of towns and cities. The evolution is found in the change from river to sea-ports. Many of the great cities are now located on rivers such as Hamburg, Antwerp, London and Liverpool; but in each case vast sums of money have been spent, and are annually being spent, to render such ports usable by the ships of great draught and length. Already the steamship companies are seeking ocean ports for the more rapid discharge of freight and passengers. The justification for this change is the loss of time now undergone in entering and clearing from river ports. In the ocean ports the vessels are not required to wait for tides and steam distances varying from fifty to two hundred miles under half speed. In fact the vast sums now invested in vessels require ports on the sea with docks and wharves for rapid unloading.

France has materially suffered by her neglect of this simple point. The government of that state has spent a great deal of revenue upon her seventy ports. The result of this wholesale method of distribution has been to give France a large number of small and poorly equipped ports. Today France has but one modern port equipped for the accommodation of the great modern steamship. In this respect the United States is better provided by nature than many of her European competitors. The ports of New York, Boston, Baltimore, Savannah, San Francisco and Portland furnish the evidence for this statement. The serious phase of the question is found in the probable decline of the older river ports and the appearance of unheard of places as the ocean termini of the steamship companies.

M. Colin has pointed out the prevalence of the protectionist idea and the notion that trade follows the flag. The situation in France presents the paradox of a protectionist nation subsidizing vessels whose cargoes are limited by legislation of that type. Upon this point M. Colin says in forcible language:

Nulle tâche ne semble, des l'abord, plus délicate. Concilier intérêts divergents, au moins en apparence, de la construction et de l'armement, ce

problème devant lequel nous avons échoué jusqu'à présent, n'est, en somme, que la moindre des difficultés à surmonter. Comment, par exemple, faire prospérer une industrie que ne vit que de l'intensité régulière et croissante des échanges, dans une communauté qui a élevé à la hauteur d'un dogme l'idée de la protection douanière, et qui travaille, ainsi, à restaurer les distances que la science avait supprimées? Et, d'autre part, n'y a-t-il pas des antinomies, douloureuses entre les aspirations du prolétariat de la mer, luttant, avec les armes du syndicat et de la grève pour conquérir un sort meilleur, et le régime de l'Inscription maritime, cette institution d'un autre âge maintenue à cause des nécessités de la Défense nationale — entre les revendications de notre Commerce qui étouffe sous l'armature pesante des réglementations administratives, qui réclame plus d'air et plus d'espace, et la tendance actuelle, commune à tous les États, consistant à faire de la navigation commerciale, dûment subventionnée et primée, une affaire d'intérêt public et comme le prolongement des grands services nationaux? Encore supposons que l'on parvienne à dénouer tant d'irréductibles conflits. A peine l'œuvre est-elle finie qu'elle se trouve surannée, car les faits se précipitent et la physionomie des choses se transforme incessamment! Puisse donc notre législateur ne pas s'attarder outre mesure à chercher le parfait équilibre entre les tendances opposées. Qu'il s'applique surtout à faire vite et à parer au plus pressé. On ne lui demande point et il ne saurait avoir la prétention de travailler pour l'éternité.

The French legislation on shipping matters is divided by the year 1860. The period before that date was filled with regulations for the taxation of foreign shipping. Since 1860 the state has entered upon the encouragement of the merchant marine by adding the financial burden to the budget of the state. The subsidy system has rendered construction slow and expensive and seemingly ineffective in producing results. Under these circumstances the author is hardly justified in referring to the United States as showing even still greater decay than France in the creation of a merchant marine. The marvelous revival in shipbuilding since 1890 in the United States is evidently overlooked.

The book, admirable as it is as a discussion of certain phases of the merchant marine, is not equal to the title *La navigation commerciale au XIX<sup>e</sup> siècle*. Lindsay devoted four volumes to the history of English shipping, but here in one volume the results, policies and legislation of the nineteenth century in reference to the world's merchant marine are set forth. The first chapter (the introduction) instead of occupying but twenty-seven pages of the text ought, in order to balance the book, be materially enlarged and extended.

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*Die Entwicklung der menschlichen Bedürfnisse und die sociale Gliederung der Gesellschaft.* By B. GUREWITSCH. Leipsic : Duncker und Humblot, 1901. Pp. 129. 3 M.

FOR more than a decade economics has been trying to swallow sociology, and sociology has been trying to swallow economics. Marx declares the relations of production are bottom facts in social life, whereas the legal, political, esthetic, and philosophical facts are only "epiphenomena." Spencer, in reply, calmly engulfs economics as "industrial institutions." Hildebrand derives the law and custom of each social stage from the prevailing economy. Giddings retorts that the succession of economic ages depends on the evolution of social relations. Of late consumption has been the favorite route of invasion. Patten undertakes to explain the succession of moral and religious ideas in England by the diet and housing of the masses. Veblen shows that our standards of right, canons of propriety, ideals of beauty, and sense of ritual fitness betray the taint of emulative expenditure. Now comes a counter invasion by this route which may widen the suzerainty of sociology by tracing the development of the commonest economic wants to the struggle for social prominence.

Our author points out in economic evolution many balks the economists have not yet been able to surmount. How have new wants arisen? Were the early accumulations of goods prompted by concern for the future? Was the cleavage into trades and professions, which lends to much labor the character of monotony and drudgery, instituted for economy's sake? How can the flesh or milk motive explain the taming of animals? When game is plentiful the hunter will not take the trouble to tame a captured creature; when game is scarce he is too hungry to spare it!

The key to these mysteries is the craving for social power. The striving for gain and the striving for glory are two parallel manifestations of the human will. The endeavor of each to maximize his influence and repute with his fellows is as primordial as his endeavor to get goods, and has, moreover, profoundly influenced the latter.

A thing is at first coveted as a means of distinction rather than a means of satisfaction. Individuals get it because being rare, or costly, or trophy of exploit, it marks them off from the herd. The rest follow suit when they can, to show they are just as good as anybody. An article that begins as a novelty is modified, as it spreads downward and loses its aristocratic flavor, into a utility. Dress sported by the leisured

to distinguish them from the clouted laborers, becomes clothing. Most cereals began by furnishing spirituous liquors to the well-to-do. Only when they entered the dietary of the poorer classes was their nutritive value prized. The useful metals furnished ornaments to the rich before they gave tools to the artisan. The ass and the horse were probably domesticated less for burden or draft than for saddle purposes, and they were ridden less for comfort than for the dignified and impressive mode of locomotion they afforded. Butter, milk, cheese, and bread, no less than tea, coffee, and tobacco, are an acquired taste and were consumed for their reputability before they were consumed for their flavor. The use of milk spread among the Hindoos from the Brahmins. In Egypt and Mexico the upper classes used bread while yet the rabble lived on dates or fish. When the mere possession of a stock of consumables procured social consideration no less than actual consumption, there came into play a powerful non-economic motive to saving.

Another title to consideration is honorable employment, *i. e.*, exploit. That this was probably the original motive in the taming of animals appears from the fact that fiercer creatures of the dog and cat kind were tamed sooner than the food-yielding species. The domestication of plants has profited by the fact that the tending of new and fancy crops is always a genteel occupation. When distinctions in the honorableness of occupations have arisen, the well-to-do pick out the worthy employments for themselves and leave the drudgery to the rest. Thus is instituted the larger division of labor.

Not even the arts and the sciences have escaped this principle of origination. The esthetic and intellectual activities that later formed the liberal professions began among the leisured, not as some suppose from sheer overflow of energy, but as honorific employments documenting one's sensibility and talent. The art work was the main thing, the product being given away or dedicated to the gods. When in time the expertness of professionals puts dilettantes out of countenance the aristocrats relinquish art work, but remain connoisseurs and enjoyers of its products. The sciences owe their beginning neither to the play impulse nor to the pure love of truth, but largely to the love of displaying intellectual prowess. Philosophy is of genteel, but exact science of humble, origin, for it was peasant brains that gave upper class speculations a practical turn and transformed intellectual sport into serious work. Language owes much of its enrichment to the

*precieuses* seeking new turns and words, in order to avoid the colloquial speech of the vulgar. Writing begins as one of the most awe-inspiring mysteries of the priestly caste.

The consuming of articles embodying a great quantity of labor is an impressive spectacle, differing only in form from the train of tamed animals and captives that was the glory of an oriental monarch or the retinue of slaves that measured the dignity of a Roman noble. For this purpose visible expensiveness, rather than utility, is the desideratum, and the rich Romans made no mistake when they kept the price tickets on their costly but far from comfortable furniture. It is possible that the practice of polygamy that takes root among upper classes everywhere has been stimulated by the same motive that prompts the opulent to surround themselves with articles of luxury. Each additional wife, whether trophy of the sword or of the purse, added to one's social consideration.

Often that beauty or utility which makes goods sought for their own sake is fixed in an object only after it has by competitive imitation entered the consumption of the middle and lower classes. The qualities of novelty, rarity, or expensiveness which commended it at its introduction being lost, it must acquire new attractions, such as grace or comfortableness. Compare the phaeton with the coach-and-four, the willow rocker with the chair of state, Greek statues with the colossal effigies of the Pharaohs. When an object is democratized, form is more thought of than materials, beauty than massiveness, charm than impressiveness.

In the author's view the opening of new lines of expenditure by the rich and great, anxious to elude the imitative pursuit of the envious middle classes, is a mainspring of progress. Satiation is always possible and if, as productive power increases, the upper class is not ingenious enough to invent new modes of consumption, the industrial population will stagnate and increasing numbers of productive laborers will be drafted into the swarms of useless lackeys the great vie with one another in maintaining. The substantial classes will languish, the ascent of the masses will be checked and social evolution will therefore cease.

Throughout the monograph one is struck by the close parallelism of the ideas to those put forth by Professor Veblen in his *Theory of the Leisure Class*. Differences in mode of approach and presentation forbid, however, any suspicion of plagiarism. Those familiar with Pro-

fessor Veblen's masterly book will find Gurewitsch comparatively weak in his grasp of principles but interesting on account of the significant facts he has gleaned from a very wide reading in ethnological literature.

EDWARD ALSWORTH ROSS.

THE UNIVERSITY OF NEBRASKA.

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*Irrigation in the United States.* By FREDERICK HAYNES NEWELL.

New York: T. Y. Crowell & Co., 1902. 12mo, pp. vii + 417.

"HOMEMAKING is the object of this book," as stated by the author. The field for this work is the arid West, and the only means of its accomplishment is irrigation. The situation as stated by Mr. Newell is this: The arid region of the United States includes about two-fifths of its entire area, about five-sixths of this area being vacant public land. The total area of the arid and semi-arid public land is given as 892,000,000 acres, of which 458,000,000 acres is improved land, 6,300,000 acres of which is irrigated, with a water supply, assuming complete development and conservation, sufficient for irrigating 74,000,000 acres. The greater part of this water supply must come from surface streams. These streams are torrential in their flow, having a flood period in spring and early summer, followed by a low water period during the late summer. All the lands which can be easily reached by canals from these streams have been reclaimed and need for their irrigation the ordinary flow of the streams. Any considerable extension of the irrigated area, therefore, means the construction of large irrigation works, and the storage of the flood waters. The public lands are open to settlement under the homestead law, but cannot be farmed until a water supply is obtained, and the expense of this is far beyond the reach of the ordinary settler.

It is for the interest of the public at large and the nation to have all these good agricultural lands utilized, and the question arises, Who is to make it possible for the settler to occupy them? This is a question which, if satisfactorily answered, must be by the lawmakers of the nation, and for this purpose, they, as well as the thinking public, should be in possession of the facts.

The task which Mr. Newell sets for himself is the furnishing of these facts, together with such further facts as will enable the settler to

make the best use of the land and water when the three of these have been brought together. It is in the light of this announced purpose that the book must be judged.

As a general description of the West, and the agricultural situation in that section, the book is good, but the farmer or lawmaker who turns to it for definite information on any subject will meet with disappointment. Almost the only figures given, those quoted above, are estimates, and the one of the greatest importance—the area for which the water supply can be made available—is liable to an error of thirty or forty million acres. The farmer or canal builder who wishes to know how much water to provide for his land, or how much land he can cultivate with a given water supply, finds an estimate of what is used in southern California, a section which is exceptional in every way, and the general statement that for good farming in other sections twelve inches of water during the crop season should be sufficient, a statement which is not borne out by the published measurements made by the United States Department of Agriculture, which are entirely ignored in this discussion, nor by the published reports of Mr. W. Irving, who is quoted on this point.

If works are constructed or contracts made on the basis of a depth of twelve inches of water on the land to be reclaimed, either the company constructing the canal will be disappointed in not reclaiming as much land as originally planned, or the farmers will be ruined by trying to farm with an insufficient water supply, and with their ruin will come the ruin of the whole enterprise. Exactly this mistake has occurred in large enterprises, with the results just indicated. This question has also an important bearing on the government construction of irrigating works, as recommended in the final chapter of the book. If the government constructs a canal or reservoir and disposes of water rights on a basis of twelve inches for the lands sold, the settlers cannot make a living and will be worse off than if nothing had ever been done for them.

Mr. Newell's comment on his discussion of the quantity of water needed—"broad statements of this kind are merely suggestive and not to be followed as rules"—applies to his whole discussion of both agriculture and engineering. Read as suggestions they are for the most part good, but read for the purpose of finding a rule to go by, which is what the prospective farmer needs, they are too general and sometimes misleading, as the one just referred to.

The weakest point in the book is the chapter on irrigation law, where the "lawmaker," on whom is laid the responsibility of making homes in the West, naturally turns for light. It neither gives a general view nor a detailed discussion, but rather states or misstates a few general principles.

The first principle discussed is that of beneficial use, which is represented as being firmly established by "court decisions."

The fundamental principle is that beneficial use is not only the foundation and basis of the right (to the uses of water), but likewise the measure and the limit thereof.

This is undoubtedly a recognized principle in irrigation law, but it is a principle of *law* which is almost uniformly neglected by the courts, which have granted rights, in many cases, to more water than the canals can carry, or the streams furnish, regardless of what has been used beneficially. These excessive decrees have an important bearing on the government construction of storage reservoirs recommended by Mr. Newell. It is recommended that these reservoirs be constructed and the water turned into the streams to be used under existing rights. On many streams the existing rights as decreed by the courts far exceed their entire flow, and in case water is stored and turned into these streams it will be taken up by the canals having these decrees and go to enrich their owners rather than to make homes for the people. The law of beneficial use, if enforced, would remove this objection, as it would cut down these excessive decrees.

The next subject discussed is the law of riparian rights, which is in force in several of the arid states. The rights of riparian owners in these states are summed up as follows: "Riparian rights can be enforced only for the protection of the beneficial use to which the water has been put by the riparian owner" (p. 290). If this is a true statement of the law it in no way differs from the law of "appropriation," which is considered to be its opposite. But the law is not correctly stated. The riparian owner has a right to a reasonable use of water for irrigating his riparian lands, which right "use does not create" and "disuse does not destroy," and of which he can be deprived only on compensation.

The law of "priorities" next receives attention:

In theory, at least, the man who first irrigated ten acres should continue indefinitely to have enough water for his ten acres, while the man who next irrigated twenty acres can have sufficient water for his area only when it is

apparent that the first man can also have his share, and so on, each person receiving an amount of water sufficient for the needs of his cultivated tract in the order in which this was put under irrigation (p. 291).

In discussing this subject the author opposes this doctrine of priorities and sums up his objections as follows: "Ten men should not be deprived of the life-giving fluid to satisfy the claims of a single individual. If water were a property in the sense of land, this consideration could not arise." Fundamentally there is no more reason why one man or a group of men should be allowed the ownership of all the arable land in a district to the exclusion of ten times as many others, than that one man should be allowed the exclusive use of a given quantity of water. The reason for a property right and its protection in one case is the same as in the other. In the West both land and water were the property of the general government and the laws for their disposal are essentially the same. Under the homestead law the settler occupies a piece of land five years and thereby gains title; under the law of appropriation the settler takes the water from the stream and by the act of taking obtains title. In both cases there have been great abuses, but no more in water rights than in land titles, and there is no more reason for protection in one case than the other. A strict enforcement of priorities has many disadvantages; but Mr. Newell presents but one side of the picture when he favors dividing the water regardless of priorities. One man settles on a stream and irrigates his farm, another comes and does the same and so on until the flow of the stream is all taken up. Assuming that these settlers use the water economically any further division of the supply means taking a little from the value of the farm of each of the settlers and giving it to the newcomer, and continued far enough deprives the whole community of any beneficial use of the water, because while each one gets some water no one gets enough to be of any use. In response to just such conditions the doctrine of priorities has become firmly established. Justice certainly demands that the first settler should not be robbed of the "life-giving fluid," which has enabled him to make a home, in order that those who come later may make new homes by ruining his. The same reasoning which would do away with priorities—that others could make a better use of the water—would apply equally well to any other classes of property which are not being used in such a way as to produce the greatest good to the greatest number, especially to land,

The discussion of irrigation law ends with a statement that public records of water rights are extremely defective as regards the various claims and times of appropriation, and a criticism of the Wyoming law, under which existing rights are a matter of record, and new rights can only be established upon application to state authorities. The conclusion is reached "that it is preferable to allow developments to proceed under existing laws and customs . . . rather than to attempt to bring about ideal conditions (referring to the Wyoming law), whose success depends largely upon an ideal administration." In preceding chapters great stress is laid upon the necessity of knowing the quantity of water which a stream furnishes before beginning the construction of canals or reservoirs, but the more important fact, how much *unappropriated* water the stream carries, is entirely lost sight of. In but two states, Nebraska and Wyoming, is there any provision for a complete public record of the flow of streams and the rights which have been acquired to that flow, and Mr. Newell takes occasion to criticise this system whenever he mentions it (pp. 110, 111, 298). That is to say, when a reservoir site is found, the important question regarding its utilization is whether the stream above that point furnishes enough water to fill it, and it is of no importance in his opinion if the right to use the entire flow of the stream is already held by parties below the reservoir site. As a matter of fact, the result for the builder of the reservoir is the same whether the water is not there, or must be allowed to flow by for the use of others. In either case the water does not exist so far as he is concerned. In no states but those mentioned is there any public authority to whom the prospective investor in irrigation works can apply and find out whether there is water in the stream subject to appropriation. He must build his works and then fight out in the courts the right to use them. The latter method is preferable, according to Mr. Newell.

The final conclusions reached are quoted from the president and secretary of the interior :

Great storage works are necessary to equalize the flow of streams. Their construction has been conclusively shown to be an undertaking too vast for private effort, nor can it be best accomplished by the individual states acting alone. It is properly a national function, at least in some of its features. . . .

The reclamation of the unsettled and public lands presents a different problem. Here it is not enough to regulate the flow of the streams. The object of the government is to dispose of the land to settlers who will build



homes upon it. To accomplish this object water must be brought within their reach. . . . These irrigation works should be built by the national government. . . . The distribution of the water, the division of the streams among irrigators, should be left to the settlers themselves, in conformity with state laws and without interference with these laws or with vested rights (pp. 294, 295).

Further progress in irrigation can come only through the storage of flood waters in reservoirs, and nearly all of this work is absolutely impossible without government aid.

The conclusion refers wholly to the duty of the nation's law making. The mission of the book is stated to be the furnishing of facts necessary for the intelligent handling of the question by those law-makers. Does it fulfil this mission?

First, as to the conclusion that storage works are necessary for the extension of the irrigated area. These facts are given in a general way.

Second, as regards the necessity for government aid. This must be taken on authority. The fact that the work has not been done is fully set forth, but the reason for this is nowhere brought out. Some irrigation companies have failed, but no examination has been made as to the causes of these failures, nor inquiry as to whether private corporations, by learning from the mistakes of the past and studying carefully all conditions, can do the work. Both reservoir and canal construction are being carried on by private parties, which goes to show that not all further progress is "impossible without government aid."

Third, as to the results of government construction. The plan recommended is that the water made available be distributed under the existing state laws and regulations. The lawmaker might want to know what these laws and regulations are; what would become of the water when stored; how title to its use could be established; whether rights had already become vested which would absorb all the water; whether it would be used to make existing homes more valuable, or to create new homes; whether, under existing state laws, the water might be monopolized by individuals or corporations who would levy unreasonable rates for its use. In fact, these are most important questions, and none of them can be satisfactorily answered from the information given, even if it were all correct. Again, the lawmaker will undoubtedly want to know what opportunity exists in his own state, or perhaps in his own district, for the expenditure of govern-

ment money in irrigation works. Here again he would find only general statements of well known facts.

To sum up, the book begins with the announcement of a purpose, which is not carried out, and ends with a conclusion which, while it may be good, is not led up to nor supported by anything in the book. Outside of the discussion of irrigation law, most of which is incorrect or misleading, the book contains nothing which has not been published repeatedly by the government or by private parties. This in itself is not a fault, if the facts were presented in such a way as to give any new light on the question of the reclamation of the arid West, but there is an entire lack of any summing up of the material presented, and no apparent effort to present a complete logical discussion of the subject.

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RAY P. TEELE.

*L'utilité sociale de la propriété individuelle.* By ADOLPHE LANDRY.

Paris: Société nouvelle de librairie et d'édition, 1901. 8vo, pp. xii + 511.

No ONE any longer believes that the possibilities of a "scientific" statement of the claims of socialism have been exhausted by the exploitation of the labor theory of value and the materialistic conception of history. The passing of the Ricardian theory of distribution, with which the older socialistic doctrine was so closely connected, and the growth of a less mechanical conception of economic processes have opened the doors for a new set of socialistic theories. More than one book has appeared within the last few years in which the theoretical equipment of the modern economist has been used in advocating the program of socialism. M. Landry's work is of this class. The concepts of contemporary economics are handled with a certainty of touch which shows wide reading and careful thought. The purpose of the book is to show those conflicts between the interests of individuals and those of society which are inseparable from the system of private property. That such conflicts exist has been admitted by all economists except optimists of the Bastiat type, but M. Landry's treatment is the most thorough with which I am acquainted.

Starting from the standpoint of production and measuring productivity in terms of utility, M. Landry points out that self-interest often prompts an owner of productive agents to limit production with the purpose of gaining a larger revenue. The classical example of this

action is, of course, the destruction of a portion of the spice crop by the Dutch East India Co. Cases of this sort are practically limited to the field of monopoly. The social loss is the difference between the utility of the goods thus withdrawn from the market and the utility of the goods substituted for them in the social budget. The conflict is that between productivity and *rentabilité* (income yielding power).

A proprietor may also injure the social interests, says the author, by limiting his employment of labor to the amount which will give him the greatest net income. This is most clearly illustrated in industries subject to the law of diminishing returns. The number of laborers employed in the cultivation of rent-yielding land is fixed, not at the point of maximum gross product, but of maximum rent. By increasing the number of agricultural laborers rent would be decreased, but the gross product and total wages would be increased. The social dividend would be greater but it would be shared among a greater number. Rent would become wages. The assumption that this change would be for the social interest is evidently based on a literal interpretation of the "greatest happiness to the greatest number" formula. The author attempts to show that social interests also suffer from the failure of the individual proprietor to take account of the effect of a particular mode of exploitation on the general organization of production.

There is less that is original in M. Landry's treatment of distribution. Inequalities in wealth distribution, so far as they permit the satisfaction of unimportant wants to the exclusion of others more intense, are declared to be an evil, and the question of the effect of socialism on the increase of population is treated with considerable detail. With reference to the "best" distribution of wealth the conclusion is that inequalities in the distribution of income should be removed, except in so far as they are absolutely necessary incentives to production.

The title of the book is misleading. Some of the most important factors affecting the social utility of private property lie outside of the field of conflict between the immediate economic interests of society and the individual. As a brief for socialism the book is wanting on the constructive side. Its essential thesis is the need of a better adjustment of wants and satisfactions, but it does not show that this better adjustment would follow the adoption of a socialistic program. But such criticism may be beside the mark. The work is avowedly only

an attempt to point out evils in the existing order, and as such it is suggestive and stimulating. There is, however, a distinct failure to realize that many of the evils emphasized are not bound up inseparably with the system of private property. Such, for example, are the evils caused by the limitation of the supply of a monopolized article, and some of the evils connected with extreme inequalities in the distribution of wealth.

M. Landry's economic philosophy has much in common with that of Effertz's *Arbeit und Boden*. Indeed, M. Landry is careful to acknowledge his indebtedness to Effertz, but is equally careful to point out vital differences in the two works. In general it may be said that M. Landry's views of economic phenomena are more conventional than those of Effertz.

The book is fair in spirit and is an important addition to socialistic literature. The style, which is mildly mathematical, is not always clear.

ALLYN A. YOUNG.

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*A Primer of Political Economy.* By S. T. WOOD. New York: The Macmillan Co., 1901. 16mo, pp. xiv + 149.

THIS book is an attempt to put the principles of political economy "within the comprehension of pupils in the fourth forms of the public school" (p. vii), or in the eighth grade, according to the classification most familiar in the United States. It differs from other similar works in that it starts with a concrete business transaction: John Doe, a farmer, buys a pair of boots with money obtained by the sale of some wheat. This transaction is analyzed as the book proceeds and to it most of the illustrations are related. The first chapter describes the work of a herdsman which helps to produce the leather; the second tells how a whale was caught to furnish the oil; the third, fourth, and fifth treat respectively of copper, bleaching powder, and rubber; the sixth describes a shoe factory. Here the more purely descriptive part of the book ends. The remainder is essentially theoretical, treating successively of supply and demand, taxation, division of labor, and exchange, money, banking, capital, corporations, subsidies, protective tariff, socialism, and the single tax.

The author is evidently a Canadian; many of the illustrations are taken from Canada, and the Canadian and English monetary systems are treated as fully as those of the United States. But he has not

obtruded his patriotic sentiments upon his readers, and his opinions on controverted questions are carefully withheld; the attitude throughout is judicial. The statement of principles is also such as would be most generally accepted by economists.

A common error is repeated (p. 91) in saying that the silver coinage act of 1878 required the purchase of "sufficient silver at the market price to coin \$2,000,000 a month," instead of, as stated in the law, "not less than two million dollars' worth per month."

The author has performed his task well as he understood it. But he has misunderstood his task through overestimating the ability of young students to grasp a system of general principles. He aimed to give "condensation rather than elementary departures, for it is the simplicity and not the complexity of economic principles that makes them so elusive" (p. vii). But it is the abstractness of economic principles, as of all other principles, that renders them so elusive, *e.g.*, in such expressions as "the saved results of past labor" (p. 103), and "banks with power to issue notes lend their credit" (p. 118). Illustrations—and the author has given plenty of them—may make a principle understood; but a body of principles can be held together only by conceiving of each one in the abstract and connecting them deductively. The story of John Doe's boots soon breaks down with its load of principles. This abstract and deductive thinking is impossible for most children and many adults, and therefore puts such a body of economic theory as Mr. Wood has prepared beyond their reach. His book would seem best suited for pupils in the second or third year of a high school, and might be just what is wanted where it is desired to study political economy ten or twelve weeks from a text.

F. R. CLOW.

OSHKOSH, WIS.

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*Economics as a Foundation for a Theory of Government.* By WILLIAM M. COLEMAN. New York: Evening Post Job Printing Office, 1901. 8vo, pp. ii + 88.

THIS is essentially a discussion of the theory of distribution, ending in the conclusion that government should promote the increase of the total product and "keep the channels of distribution free so that such increase may be promptly diffused throughout society." The author ranges somewhat widely through economic literature, but devotes more

attention to Clark than to anyone else; his treatment of distribution is in the main that of Clark, except for his dismissal of the "marginal device" as a useless and confusing elaboration. To the general reader the work would be utterly unreadable because of the heavy style and confused thought; while the specialist, for whom it was doubtless written, will find little that is new.

F. R. CLOW.

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*Kulturgeschichte der Neuzeit.* By KURT BREYSIG. Band II: Erste Hälfte, *Urzeit—Griechen—Römer*; Zweite Hälfte, *Entstehung des Christenthums—Jugend der Germanen.* Berlin: Georg Bondi, 1901. 8vo, pp. xxii + 518 and xxxix + 521-1442.

THE continuation of Professor Breysig's *History of Culture in Modern Times* has in every respect kept up to what the introductory volume promised. The treatment of the subject is broad and comprehensive, the opinions expressed are characterized by thorough knowledge of the literature, and above all the book shows understanding and sympathy for the latest, most progressive views without always subscribing to their dictum. The volumes are in every sense modern in tone, and though critical in attitude are not overwhelmed with detail. True to the idea expressed in the first volume, (reviewed in June number of this JOURNAL, 1901), the author never discusses the economic side of civilization except in connection with its social and political features. This attitude, at least as far as the ancient period is concerned, may be justifiable because of the meagerness of the sources and the prevailing interest in political events, but it leaves a gap somewhat painfully felt in the otherwise rather exhaustive treatment. However scant our information, economic problems must have faced the Greeks as they faced all other nations. Notwithstanding the frugality of the race and the advantageous nearness of a large continent, the food question, no less than a large international competition for trade, must have been a serious matter and brought about colonization and the search for new unexplored territories. How the aristocracy with its country estates and retinue of dependents passed over into a city population with a growing industry, a large percentage of strangers and of slaves, which made certain cities metropolises of commerce with shipping companies, factories, money-lenders, yet all the while the

small dealer and the industrial artist existing and perfecting himself in his profession—to these things the author gives but a passing glance. And yet the very existence of structures such as the Acropolis or the temples, the maintenance of long and expensive wars, the maintenance of a fleet which fell to the lot of most cities, and Athens in particular, seem to indicate a far more concerted and powerful effort than one is at first aware of. And the commerce between a mother city and her colonies must have engaged more hands, caused a livelier exchange of products, and brought more real fortune to the citizens than one can even make a guess at. Otherwise Greek civilization in its magnitude and complexity rests upon an economic foundation altogether too insecure for such a towering and expansive edifice. More to the point is the author's treatment of Roman economic conditions, although the agrarian troubles are but touched upon in connection with the revolutionary disorders. But we see at least the progress from home farming on the part of the free owner to the absorption of the numerous small homesteads into large complexes of land held by one, and the gradual change from farming by free into the cultivation by slave labor. Most interesting and in every way instructive is the account of how during the empire, at first for political, later for fiscal reasons, all personal ambition and initiative became paralyzed by a system of corporations and class limits from which finally no one could escape. Thus the reader is made to understand fully the gradual withering and dying off of the recuperative power of the empire, the strange separation of all classes into castes, and a population of half-free tied to the soil as the last phase in a slow process of reducing everyone to a mute and stationary agent. This despairing recourse to methods entirely out of date and seemingly inflicted upon a population of conquered districts instead of upon faithful subjects and privileged citizens, completes the picture of the financial decay of Rome.

The second part of Vol. II has for its contents the history of the Germanic nations. As to the plan of this part of the work, which is by all means the larger one, each of the three leading nations is treated in succession under various aspects, generally speaking in the light of its political, social, economic, intellectual, and religious history. Afterward the less conspicuous ones receive their mention. The period is the first half of the Middle Ages (until 1300). In treating the life of the Middle Ages the author is far more generous in regard to economic matters. In this field research has proceeded at a more rapid

rate and made the past less obscure. On four hundred pages out of a thousand the economic side of mediaeval history is far more thoroughly discussed than was that of the ancient time, although never separate from the social or political changes. It is interesting to notice that nowhere are economic conditions accorded a special paragraph; they are always one of several topics treated in connection. This may be quite right since it is in fact difficult to separate any of them from the other. Still, if the author very seldom allows the economic feature to have a governing or decisive influence, but looks upon it as rather a sustaining and corroborative movement, it seems to us he is not altogether fair. For example, he treats of the large estates of the early nobility and the subsequent creation of a more or less servile tenantry as due merely to the overpowering political ambition of a warrior class (who disregarded husbandry). Whereas we should say that these conditions were in the first place due to the complete absence of commerce and a considerable lack of movable property. The habit of looking upon land and the ownership of land as the only source of wealth and sustenance governed the ambition of everyone, not only of the powerful, as the first step, a strictly economic step, to political rights. The importance of prevailing economic ideas in shaping a nation's destiny ought not to be thus left out of account. These shortcomings admitted, we find the development of manorial estates with more complex and complete functions, the continued differentiation of society which created a class whose business it was to fight and to command and classes whose business it was to provide, a change which must have gladdened the shade of Plato, the continuation of slavery as a soil-bound institution, the beginnings of the *officia*, which have to some extent been parent to the guilds, the guilds themselves in their various aspect, the communes, the cities with their first signs of a rational system of taxation based upon valuation of property, not of service or the right of a military commander to demand contributions in kind and tribute—all these things and many more set forth and discussed at some length. They are treated suggestively and add a fair share of fresh information to what is already known by most students of economic history. The very important rise of the Italian republics during this earlier period, with welcome attention paid to the movements of the guilds, has nowhere, as far as we know, been treated within such small compass with a better grasp of the essentials. Judging from this, and in spite of possible disagreements as to certain matters, which we consider more



and the author less fundamental, we can look forward with lively anticipation to the next issue.

A. M. WERGELAND.

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*La sécurité du travail dans l'industrie.* (Moyens préventifs contre les accidents d'usines et d'ateliers.) By PAUL RAZOUS. Paris: Vve Ch. Dunod, 1901.

THIS book is devoted to a discussion of means and methods to be applied in industrial establishments in order to guard their employees against accidents. As basis for his work, the author has taken the factory laws of March 10, 1894, and those of April 30, 1880, and June 29, 1886, regulating the use of stationary and portable steam-generating apparatus (pp. 5-19). The meaning and object of each section of the law are discussed, their application to the various industries explained, and directions are given how to conform to the spirit of the regulation.

In chaps. i to v (pp. 21-199) factory buildings, their motors, machinery, and mechanical appliances are considered. We learn that in compliance with the various sections of the laws, motors, flywheels, shafting, pulleys, hoist- and hatchways, stairways and landings, vats and pans, wherever so situated as to be a source of danger to working people, must be railed or fenced in. Two hundred and five cuts illustrate practical safety devices for all sorts of machinery. Useful shields for gearing and friction-cones, safety couplings and collars with protected set-screws are shown, and their application explained. There are designs for automatic doors and safety catches for elevators, and formulæ by which to determine the safe running speed of pulleys and the diameter of shafting. Considerable importance and space are given to woodworking machinery (pp. 123-170), and numerous safeguards of varying construction for circular saws are exhibited. To consider them singly would lead too far. Suffice it therefore to say that all have for their object the protection of the operator against the many serious accidents which are liable to occur by careless operation or from various other causes. Guards for band saws, for jointers and wood shapers, are also presented, and practical shaft attachments for putting on or taking off belts from pulleys. Emery wheels and grindstones are shown provided with safety hoods, flanges, and other appliances.

The importance of furnishing operators in factories with means by which the motive power, in case of accident, may be quickly disconnected, is the subject of chap. v, and figs. 206 and 207 exhibit two designs for this purpose. Many accidents occur in oiling, cleaning, or repairing running machinery, and chap. vi. is given to directions for personal safety while so employed. Fire precautions, fire escapes, and fire extinguishers are the subjects of chap. vii and a formula is given by which to arrive at the number of exits and stairways required for a workroom in order to get a given number of persons out of the building in case of fire. The installation of electrical machinery, generators, accumulators, and transformers has been considered in chap. viii; and section 18 of the factory law, prescribing the style of dress to be worn by operators of machinery, is related in chap. ix. Chaps. x to xiii treat of dangers from burning or scalding by chemicals, molten metals, and steam; instructions are given how to handle inflammable material and explosives, to guard against steam boiler explosions or those of gases, chemical compounds, and gases in blast furnaces, as also against asphyxiation in chemical industries. Laws regulating the employment of women and children are the contents of chap. xiii. The weight which a child of given age is allowed to carry, to move on a push-cart, or by wheelbarrow, is fixed by legal status.

In chap. xiv the author has collected opinions of different government inspectors of the French Republic as to the effectiveness of the present labor regulations and recommendations for improvements. Instructions as to what to do in case of accidents, or first aid to the injured, close the work—a matter which deserves wide circulation in factories and workshops.

On one point M. Razous's scheme is open to objection. In safeguarding machinery there is danger of overdoing things, thereby not only impairing the usefulness of the machine, but at the same time making the employee careless as to his own safety, and so defeating the purpose of the whole.

The various safety devices for circular saws, presented in this book, for instance, have fully attained the purpose of guarding the saw, but the man behind such a machine simply has become an automaton. An American woodworker would rather quit his job than to work on a saw with such incumbrances. What he wants is a good and solid table, a true running saw with teeth set to suit his work and sharp cutting edges, and an adjustable steel splitter back of the saw with an

adjustable short steel guard reaching forward over the saw's circumference, put there for the purpose of arresting any piece that might be hurled from the saw. He wants to see the object upon which he is working and he realizes that his watchfulness is the best safeguard. A jointer guard to which an American woodworker will not object has yet to be invented. A good table, true and sharp knives, and a light adjustable side gauge are sufficient protection to him. The danger lies rather in the desire to replace the skilled workmen by unskilled labor, and a first preventive against accidents on high-speed machinery should be legal prohibition against employing unskilled persons on them.

Nevertheless, this work cannot fail to be highly appreciated by the manufacturers of France, factory superintendents, and employers' liability insurance companies. It is worthy to rank with the *Atlas de Mulhouse* and the bulletins of the Association des Industriels de France contre les accidents. It will give employers valuable information which, if followed out, will aid in reducing the number of accidents to the men behind the machine.

JULIUS MOERSCH.

ST. PAUL, MINNESOTA.

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*Le developpement économique de la Russie.* Par J. MACHAT. Paris: Librairie Armand Colin, 1902. 8vo, pp. xvi + 311.

RUSSIA has within the last decade sprung into prominence as an industrial country and a field for foreign investors. To satisfy the interest of the western public in her natural resources and economic opportunities, the Russian government published a volume of statistics and descriptive matter in French for distribution at the Paris exposition of 1900. The information contained in that volume forms the basis of the work of the French author; this has been supplemented by a few other official publications and magazine articles in French, German and English. Of the authors perused should be mentioned Professor Schulze Gaevernitz, who is familiar with the Russian language, has lived in Russia and is recognized as a thorough student of Russian conditions. To the student who reads German and French Mr. Machat's book offers nothing that is not as easily accessible in the sources from which he has borrowed. There is no attempt to scrutinize the official material given to the public by the Russian ministry of

Finance; as *e. g.*, where the Russian budget is said to have shown for over ten years an excess of incomes over expenditures (p. 20). The general tone is accordingly quite optimistic. That "Russian mills cannot be killed by overproduction" (p. 17) sounds peculiar in the presence of an industrial crisis which has swept out of existence many a foreign investment. The book must have been in press at the time the crisis broke out; to meet the situation, the author has added a little note (p. 311), mentioning the fact with the following comment:

In a book intended to give a general view of the economic development of Russia and her future prospects, the author has not thought it necessary to take account of an accident, by the way of a rather local character. Similar crises are common today, of which Germany has recently given proof; they can delay, they cannot stop the progress which is in the very nature of things. Their causes and effects cannot be justly appreciated until many years are over.

The crisis is described as local because it primarily affected the iron and the coal industry. Still from the place occupied by coal and iron in the economics of modern nations, it might be argued even *a priori* that a crisis in those two industries could not fail to involve the entire industrial system. In fact, it brought in its train a banking crisis, which resulted in a series of financial failures and a general depression of trade in Russia. It would seem that some reference to the crisis might not be irrelevant at least when it is shown that the production of iron ore more than doubled within six years (p. 36), that the production of pig iron nearly trebled (p. 182) and that of steel increased by 400 per cent. since 1890 (p. 190), or that the production of coal nearly trebled within the same period (p. 45). It is just possible that the present crisis may have some causal connection with what might upon a thorough analysis prove an artificial over-production, fostered by over-speculation. This at least is the ground taken by the Russian Minister of Finance, in a communication which appeared in the *Vestnik Finansov*.

Still this is a good little book for one who seeks a general acquaintance with Russian industrial conditions. The information is as accurate as its sources, but has the inestimable advantage of being worked up by a Frenchman; and a Frenchman is always true to the rule laid down by Voltaire: "All kinds of literature are good except the tedious." The book is anything but tedious. It has style in it, it is an attractive presentation of a subject at times dry. The author knows how to bring out the salient points, using facts as illustrative

of his propositions and thus impressing both facts and comment upon the mind of the reader.

The book is divided into seventeen chapters, dealing with metals and minerals (III), coal and oil (IV), forests (V), the fisheries and hunting (VI), farming, more especially stock raising, the production of breadstuffs, sugar beet, flax, hemp, cotton, etc., and Russia's place in the grain market of the world (VII to X), the iron industry (XI), the textile industry (XII), copper, chemical products, beet sugar, alcohol, liquors and leather (XIII), transportation (XIV and XV), foreign trade (XVI) and the tariff (XVII).

The author dwells upon the development of a rural proletariat within the village community. The undeveloped state of transportation is discussed and the interesting fact is brought out that the great fairs at Nizhni-Novgorod and Irbit are steadily declining with the extension of the railway system. In their stead local markets for particular products are growing in number and importance. The development of the Russian cotton mills, fostered by the Russian tariff, is portrayed in detail; the consumption of cotton in manufacturing establishments appears to have doubled within the last ten years; to-day Russia holds second rank as a producer of cotton prints; many foreign manufactures have been entirely driven from her markets by domestic products.

The point of view is that of a Frenchman concerned for the interests of his country in the growing Russian trade and commerce. The author clearly shows that France has but a meager share in the Russian foreign trade, the bulk being controlled by Germany and England. The United States are ahead of France in the markets of her ally. In other words, the Franco-Russian alliance is devoid of a lasting economic foundation, whereas there is a close mutual economic interdependence between Russia and Germany. The fact is suggestive of the future international relations between the great powers on the continent of Europe.

I. A. HOURWICH.

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*Educated Working Women.* (Essays on the Economic Position of Women Workers in the Middle Classes.) By CLARA E. COLLET, M. A., Fellow of University College. London: P. S. King & Son, 1902. 12mo, pp. vi + 143.

CLARA E. COLLET, the English writer on the problems of woman, might be regarded by some of the radicals as a reactionary in that she

admits some difference in the aptitude of men and women for certain kinds of work ; this difference should lead to co-operation between men and women, rather than competition, she maintains.

There are a number of neglected phases of the woman problem which she takes up here. For instance, she says that the false value put upon the professional and leisure classes by society inclines the educated woman of the middle classes to look down upon the practical men.

Brain-power is worshiped, and as people with brains are not encouraged to exercise them in a practical direction, the possession of brain-power is not ascribed to those who do not display capacity or liking for classics or mathematics or the abstract sciences. And the whole tendency is to compete with men where men are strongest. And here, socially, morally, and economically, we are making a great mistake. We are narrowing women to one kind of education, which would cut off the majority of them from sympathy with the men in their own class.

Socially, therefore, the educated woman at present is isolated from her class and suffers in consequence. Morally she suffers, for she is not developing her natural powers. A woman's emotional nature is different from a man's, her inherited experience is different, her tastes are different, and — greatest heresy of all nowadays — her intellect is different. It is a common thing to say that there is no sex in intellect. If the upholders of this theory mean that from two given premises the same conclusion must be drawn by men and women whenever they think rightly, of course no one can deny it. But this purely deductive work can be done by machinery. The real work of intelligence is the induction which supplies the premises, the selection of premises suitable to the purpose in view and the application of the conclusion. The working of intelligence is prompted, strengthened and directed by interest and emotion ; and here it is that men and women differ, and always will differ, a woman inheriting, as she does, with a woman's nervous organization, a woman's emotional nature.

It is on this difference between men and women, amidst much which is common to both, that I build my hopes of women's success in the future.

With this difference in mind, the Englishwoman discusses the economic position of woman in England. Undoubtedly there is much more reason for dissatisfaction there than in this country, but the whole situation rests upon the industrial basis whose general rules of supply and demand and of "living wages" are the same everywhere. And the subtle influences of the prospects of marriage are the same, and to some extent equally detrimental to concentration of thought and energy upon the work in hand. But, whereas "the incapacity of

a man is referred to the man himself ; that of a woman is credited to the sex," and thus it is that the position of woman always appears dependent upon the behavior of any individual woman who has laid claim to other than domestic honors.

A statistical treatise upon marriage which the author includes in her essays proves little except for the communities where the figures are gathered, and there, as in New England, the greater number of women than men makes it appear little less than ridiculous to urge all women to marry. The competition would become intense.

By far the most interesting portion of the book to the lay reader is that given up to a discussion of Mrs. Charlotte Perkins Stetson's ideals. The English critic of the American woman sums up in thirteen paragraphs the arguments of the whole book, and then points out a lack of logic. She disagrees with Mrs. Stetson's belief that the wife must be economically independent of the husband.

Mrs. Stetson makes no distinction between the effects of economic dependence before marriage and economic dependence after marriage. But provided that before marriage a woman is able to support herself with sufficient ease to render her a free agent, and that she retains the *power* of being self-supporting should economic necessity from any cause arise after marriage, what is the objection to pecuniary dependence on the husband ? I see none whatever.

That is a question worthy of still fuller discussion.

Miss Collet says that unfortunately the married woman in the working classes is, in large numbers, already independent of her husband ; "and there is no greater slave to her husband than the woman who receives no support from him."

The closing paragraph is cleverly satirical — one wonders what Mrs. Stetson would reply, when it is said : "She is never so childlike as when she imagines she is most daring. And the charm of the book is its excessive femininity. What she says, even when not absolutely absurd, may be of little importance ; but her feeling is so genuine and strong as to merit respect and attention."

CHARLOTTE TELLER.

DENVER.

## BENEVOLENT AND PROVIDENT ARRANGEMENTS OF FRENCH RAILWAY COMPANIES.

Compiled by L. EOPOLD KATSCHER,  
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IN 1844 the manager of the Paris-Orleans Railway, François Bartholony, gave admirable expression to the principles that should animate directors of such undertakings: "To all those who serve our company and contribute to its prosperity, it behooves us to give an interest in that prosperity; that is to say, we should stimulate their zeal, reward their exertions, raise them in their own esteem and in that of the public—in a word, attract to us capacity. By every such measure we shall reap direct and indirect advantage. Moreover, the men who spend their lives in our service ought never to find themselves within sight of destitution. If the retired officials of a great administration are allowed to come down too low in the social scale, its dignity is bound to suffer."

It has been the constant policy of French railway managers to make old-age provision for their servants. The gradual progress which they have in course of time achieved in their provident arrangements offers a study of no little interest. The efforts of the companies and the results obtained, afford models worthy of imitation, and deserve the attention, not alone of those whom the subject more particularly concerns, but of every friend of the workingman.

Before we enter upon a systematic and detailed survey of an instructive mass of accumulated experience, a few interesting general statistics will be given. In 1897 there was spent for benevolent purposes:

By the Eastern Railway, nearly 9,000,000 francs, that is, 45⅓ per cent. of their dividend.

By the Southern Railway, considerably over 6,000,000 francs, or 29 per cent. of their wages and salaries fund.

By the Paris-Lyons & Mediterranean Railway, over 13,000,000 francs, or 30 per cent. of their dividend.

By the Paris-Orleans Railway, almost 9,000,000 francs, or more than a quarter of the dividend.



The Western Railway allows its benevolent fund annually to absorb a round 25 per cent. of its wages and salaries fund.

I. ANNUITIES (PROVISION FOR OLD AGE, PENSIONS) OF THE  
PERMANENT STAFF.

1. *State railways*.—The pension fund is fed (1) by deducting 5 per cent. from the fixed pay of officials and workmen concerned; (2) by 10 per cent. derived from the wages and salaries fund (the payments under the first head being made by the employees, under the second by the company); (3) by yield of interest on the pension fund's capital; (4) by all manner of gifts and subsidies from the administration, (5) by a portion of the money fines. On retirement or dismissal, all money paid in is refunded, but without interest; similarly in case of death. Pensions are due after the age of fifty-five, and after twenty-five years of service. In certain special circumstances, clearly set forth in the rules, the claim may arise in part at least even earlier. The usual pension is calculated on exactly the same scale as that of the Eastern railway. If pensioning takes place before the accustomed time, the old-age annuity is reduced by a fiftieth of its average amount for as many years under twenty-five as have been withdrawn from the recognized period of service; but in the case of any railway servants who, after fifty years of age and twenty years of service, shall have become unfit for work, no such reduction takes place. There is also a large class of employees whose claim to a pension begins with their fifty-fifth year, without the condition of their having served twenty-five years; these receive for each year of service a fiftieth of the average receipts of their last six years of service. No pension can exceed three-fourths of the average salary of the recipient during his last six years of service; the highest amount of a year's pension is 6,000 francs.

As soon as a man attains to the enjoyment of a pension, he can claim the refunding of his entire pension-fund payments, but this step causes the pension to be reduced by one-half. The pension for widows or orphans amounts to half of the pension granted to a man; a widow with children will share with them the pension. The death of an employee while in the discharge of his duties, even after but fifteen years of service, entitles his family to their full pension, provided that the man had been married for not less than three years.

2. *Eastern Railway*.—The staff of permanent officials and workmen, numbering collectively over 20,000, has a separate pension fund,

into which members pay 3 per cent., while the company pays 12 per cent. of the wage and salaries fund. This offers the following advantages: (1) After a man's fifty-fifth year and twenty-fifth year of service, he is entitled, if he have made the due payments, to a pension that shall be equal to half the average amount of his fixed pay during the six years of his highest earnings. With each successive year's subscription the pension rises by a sixtieth of the fixed pay, and may go up to three-fourths of the same, while, however, in no instance exceeding 9,000 francs. (2) In the event of permanent unfitness for work, a man can, after fifteen years' payments, and irrespective of age, claim an annuity, and actually get, per year of payment, from a sixtieth to a fiftieth of the average (as stated under paragraph 1) of fixed salary. A like pension may under certain conditions be also obtained on a man's quitting the company's service, even without his becoming invalided. (3) Widows' and orphans' pensions equal half members' pensions. (4) The lowest pensions are (irrespective of age): after fifteen, twenty, and twenty-five years of subscription, respectively, 300, 450, 600 francs (widows and orphans 250 to 365 francs). (5) Anyone who leaves the service of the company without having a pension assigned him can claim the refunding, together with interest, of the payments he has made. (6) Should the pension not exceed 2,000 francs, the pensioned member will yearly receive out of the provident-fund, to be mentioned presently, the amount of monthly wages or salary drawn during the period of activity.

In the year 1897 the company made a donation to the pensions-fund of 4,759,917 francs, while the fund disbursed 6,204,689 francs, in which sum accident pensions are not included. Moreover, there was paid to employees who left the service without having a claim to an annuity, a clear 100,000 francs by way of refunding of payments and interest.

3. *Southern Railroad*.—The provision-for-old-age fund was founded in 1856; its present organization dates from the years 1891 and 1894. Its benefits are shared by the regular staff, and by the men employed in the storehouses and workshops. Members pay in 3 per cent. of their salaries, to which the company adds what equals 15 per cent. of the joint pay of all the members. A pension can be claimed at the age of fifty-five, and after twenty-five years of payment, and, indeed, on half of the average of pay of the six last years of service; but, should the average pay of the total period of service be more favorable to the

members, the calculation of the pension will be made on this basis. For every year of service after the twenty-fifth, a fiftieth of a man's average receipts will be added to them; the pension may not, however, exceed two-thirds of the average, nor amount to more than 8,000 francs.

A man who becomes unfit for work is entitled to claim a pension after even fifteen years' payment; he then receives a fiftieth of his average pay for each year of service.

A man who leaves before being qualified to receive a pension, or who is removed or dismissed, can claim only to have his payments refunded without interest. The company will, however, in many such cases, consent to smaller pensions, provided the person concerned can show a record of not less than fifteen years' payments, and has not been dismissed for insubordination, intemperance, dishonesty, or continuous neglect of duty. Undivorced widows can claim a half-pension, provided the marriages have taken place not less than five years before the cessation of service on the part of the employee. If there be no widow duly entitled to a pension, any orphan children of less than eighteen years, whom there may be, can enter upon the enjoyment of a like annuity (namely, half the original amount) until they come of age. Survivors of an employee who has served less than fifteen years receive no annuity, and the half only, without interest, of the payments made by the deceased.

On December 31, 1897, the subscribing members numbered roughly 15,000. There were 4,728 pension-holders, of whom more than half were in the enjoyment of the normal or average annuity. In the course of the year 1897 holders of pensions drew something like 3,000,000 francs. The funds involved at the present time amount to a round 63,000,000 francs.

4. *The Northern Railway.*—Persons qualified for pensions fall into three categories: those respectively who formed part of the regular staff before May 1, 1896, and those who come after that date, and, lastly, the so-called "classified."

A. For those who were installed before May 1, 1896, there exist two kinds of pensions. One of these is calculated upon the payments made by qualified claimants; the other, upon yearly concessions from the company. For the former 3 per cent. is deducted from fixed pay, and placed in the national pensions fund to accumulate. The old-age income yielded by it may begin to be drawn at as early an age as

fifty, unless a man still desires to remain in the service of the company, in which case the annuity begins only at the moment of his retirement. The pensions granted by the company may begin after a man's fiftieth year, and after his twenty-fifth year of service, if his work has been sedentary. In the case of one who has been employed on active work, twenty years of service will suffice to win the pension. One who, in the course of service, becomes unfit for work, enters yet earlier on the enjoyment of a pension. Calculation of annuities is made per years' service, with an eightieth of average pay during the last six, or six most highly paid, years. The company has founded a special pension reserve fund, to which it now annually devotes 9 per cent. of its wage and salaries fund. In 1897 the company paid nearly 5,000,000 francs for pensions coming under this head.

*B.* The old-age annuities of persons engaged after May 1, 1896, are derived from deduction of 5 per cent. for three years from their regular salaries; of 7 per cent. during the next three years; of 8 per cent. during the third three years; of 9 per cent. from the tenth year till the thirtieth (inclusive), and after that again of 5 per cent. The deductions and the additions are paid quarterly into the state pensions fund, and to the account of each individual claimant. Every account-holder receives a small account-book which, under all circumstances, remains his own property, even should he on any ground whatsoever leave the company's service. The warrant to draw pension-money begins with the fiftieth year; or later, should a man desire to defer the period of retirement; but in no case later than the end of the sixty-fifth year. In 1897, 121,487 francs were drawn by the members of this group; the payments relative to the same made by the company amounted to some 89,000 francs; a rough total, taking these two sums together, of 210,000 francs.

*C.* In the third group, the pensions are derived similarly to those in the second, but the rates of percentage are different.

The deductions amount only to 3 per cent. of the regular salaries of those concerned; in the next nine years they reach 4 per cent; in the sixteen years that follow, 5 per cent.; and after the thirtieth year, again 3 per cent. Those employees whose service in the company dates from before May 1, 1896, and who come under the schedule of the "classified," need not, unless they choose, consent to any deductions; in that case, the board on its part makes them no contribution. In 1897 the percentage from salaries came roughly to 296,000 francs,

the contribution, by chance, to about as much. Together they slightly exceeded 593,000 francs.

5. *Paris-Orleans Railway*.—This company had in the year 1844 conceded to its permanent staff a claim to profit-sharing. As soon as the shares in one year have yielded 20,000,000 francs of interest and super-dividend, 15 per cent. of any such net profit shall be made over to the staff. Should the surplus exceed 9,000,000, the staff receives as its share only 10 per cent. of the next 3,000,000, and merely 5 per cent. on the remainder. The share of each individual will to the extent of a tenth of his wages or salary be placed in the state pensions fund to go toward a provision for old age. The rest, whatever it be, is paid in cash. As, in consequence of the great increase of the railway network, the number of claimants has considerably multiplied, and, as the above bonus rates are unfortunately very low, single bonuses since 1876 no longer come up to 10 per cent. of the fixed income. In order to compensate for this deficiency the company completes the 10 per cent., and for each employee whose salary falls short of 3,000 francs, it adds another 4 per cent. on its own account. Individual account books remain in every instance the property of the parties concerned or their survivors. After a man's fifty-fifth year, and twenty-fifth year of service, the pension must make up half the average of the last six years' pay. If the amassed capital does not suffice to do this, the company supplies what is wanting. For each subsequent year of service the old-age annuity rises by a fortieth (in the case of other railways from an eightieth to a fiftieth only) of the average, but in no case can it exceed three-quarters of this average. Anyone who is dismissed before his twenty-fifth year of service receives a proportionately smaller pension. A widow's pension is in every instance reckoned as half of the original claim. In 1897 the old-age pension fund for the company's regular staff absorbed nearly 5,000,000 francs (in part made up from profit-sharing, in part from contributions).

Those of the regular staff who have been rendered unfit for work by any accident that has befallen them while in the discharge of their duty, can claim a pension to the extent of half the average of their salaries during their last six years, less a fortieth for each year of service under the age of twenty-five, and an eightieth for each year under the age of fifty-five. The pension can, however, in no instance fall below 400 francs. Those belonging to the remaining division of the staff will in like circumstances receive a uniform pension of 400 francs

without reference to age or length of service. The widows and orphans pension is always equal to the half, but at least 300 francs (in 1897 a sum of 164,000 francs).

6. *Western Railway*.—The pensions are placed partly in the company's, partly in the national pensions fund. The former fund is fed by the administration with 12 per cent. of the wages and salaries fund; while in order to invest the latter in the interest of the staff, 4 per cent. of salaries is deducted. The usual annuity amounts to half the average pay of the last six years of service. In the case of engineers and firemen it begins after the age of fifty-five, and after twenty-five years of service; for other employees and for all officials, five years later. For each subsequent year of service a sixtieth of the average is added. By whatever amount the sum credited to a claimant on the national pensions fund may, at the date of his being pensioned, fall below the appointed statutory rate, the necessary supplement must be made from the company's pensions fund. In general, this latter must supply two-thirds of the usual annuity, since, in most cases, the savings of claimants to a pension yield only one-third. Physical incapacity for service entitles a man, even before the due time, to a pension, the scale of which is fixed according to the length of his service. In regard to widows' and orphans' pensions, the same rule holds as that of the majority of companies hitherto mentioned. No employee's pension can fall below 500 francs, no widow's annuity below 250 francs. On December 31, 1897, there were 28,900 contributing claimants for old-age pensions, and a round 7,000 pensioners, among these some 3,000 widows and orphans. In the course of the year 1897 pensions amounted to nearly 5,000,000 francs, while the company's contribution to the pension fund came to far over 5,500,000 francs.

7. *Paris-Lyons-Mediterranean Railway*.—This company's pension fund was called into being in 1856, and completely reconstructed in 1864. Its organization has undergone several changes, result of which has been to hold out even greater advantages to the staff. The last of these changes took place in 1895. The employees who may claim the enjoyment of these advantages are such only as were permanently appointed before May 1, 1895.

Into the fund flows 6 per cent. of claimants' wages, and a sum equal to 10 per cent. of these wages, as a contribution from the company. The claim to pensions starts after fifty-five years of age and twenty-five years — and in certain cases even less — of service. In case

of unfitness for work, it begins after not less than fifteen years, without reference to age. For each year of service a fiftieth of the average salary is reckoned. Widows, or orphans not of age, receive half the employee's pension. If an official leave the company's service before he has earned the right to a pension, his own payments, without interest, are returned to him; in the event of his death, these same are handed over to his survivors.

On January 1, 1898, the fund had over 36,900 members, a round 12,200 pensioners (average pension 900 francs), and a capital of over 130,000,000 francs.

## II. PENSIONS FOR THE REST OF THE STAFF.

*State railways.*—The Charitable club for the non-permanent staff, founded in 1880, under the patronage of the railway directorate, has for its purpose to procure pensions for its members and for the widows and orphans of members. If there be neither wife nor child, then help will be given to the deceased member's parents, should these find themselves in need. The right to membership depends on the following conditions: A candidate must have served at least six months, and he must not be under eighteen or over forty-five years of age. The direction of the association is in the hands of the manager of the state railways, along with six colleagues, whom he appoints, and seven of the general body of voting members. Into the funds of the association are paid: (1) 3 per cent. of the fixed salaries of members; if this 3 per cent. should come to less than 3 francs a month, the members concerned have the right, in order that they may enjoy the full advantages of the fund, to pay in 3 francs monthly. (2) The voluntary contributions of honorary members (not under 2 francs monthly). (3) The subvention of the railway directorate (4) The yield of the fixed and floating capital of the club. (5) Every kind of gift and bequest. (6) Payments (up to 400 francs per head) of members admitted for pension as being under fifty-five years of age, who by virtue of such payment may insure themselves a higher old-age annuity. (7) A portion of the fines money of the non-permanent staff.

If a member is placed on the permanent staff, his membership expires, and there is restored to him, without interest, the amount of his own payments. The claim of members to pensions begins with the close of their fifty-fifth year—or earlier, should they have become unfit for work. The amount of the pension depends upon the rate of the

interest (settled annually by the general council) to which the payments of a member entitled to a pension are for the time being entitled. In the calculation of the annuities, one-half only of all other payments is taken into account. And, as has been stated, the club also affords assistance; such help is, according to circumstances, either temporary or of a lasting kind.

*Eastern Railway.*—No portion of the salaries of the members of the non-permanent staff is subtracted for pensions. They are entitled to pensions corresponding roughly to those of group *A*: the same holds good of their widows' and orphans' annuities. These moneys are drawn from clear profits, and yield respectively, at the very least, after fifteen, twenty, and twenty-five years of service—irrespective of age—200, 300, and 400 francs (widows' and orphans', 150, 200, and 250 francs.) To the widows and orphans of members of this group a round 680,000 francs were paid in 1897.

*Paris-Orleans Railway.*—The temporary staff and master workmen have a right, after five years' service, to demand that for the future 2 per cent. of their pay shall be subtracted, and shall, together with a contribution of like amount from the company, be paid into the national pensions fund, for the purpose of old-age provision. Over and above this every man receives, after the age of fifty-five and twenty-five years of service, an annuity of 350 francs. If he serve still longer, the annuity increases by 10 francs per working year until it reaches its maximum of 400 francs. Should the service end sooner, the annuity is reduced yearly by 5 francs. The annuity for widows and orphans amounts to half (in 1897 almost 535,000 francs).

*Western Railway.*—Since 1881, temporarily employed workmen of every branch of trade are admitted to permanent appointments, and can therefore have a share in the pensions funds. Yet there still remains a percentage of those who, by reason of age, can no longer be admitted. To such, a yearly annuity of 365 francs is assured. In 1897 over 68,000 francs were so paid out.

*Paris-Lyons-Mediterranean.*—For the temporarily placed staff, that is, those employed as trackmen, workshop artisans, and the like, the company formerly provided only by occasional allowances on dismissal, or small annuities. Now, however, to these also regular pensions have been assigned, and these are accumulated in the national pensions fund. Similar pensions fall to the share of that portion of the permanent staff which entered the company's service only after May 1,



1895. Four per cent. of their earnings are subtracted, and, together with from 4 to 6 per cent. contributed according to length of service by the company, paid into the state bank. Each claimant receives an entry-book, which remains under all circumstances his own property. If he should die before the date for pensioning, it belongs to his heirs, and so also if he for some reason or other leaves the service. In regard to married employees of this division, one-half of the accumulated amount of their own payments toward the pension will be credited to the wife's account. That part which is drawn from the company's contribution will be credited wholly to the husband. The company makes a further concession to every member of their group above the age of fifty-five, and of twenty-five years' service, or should he become unfit for work, even after fifteen years of service, irrespective of age: a single compensation, namely, on dismissal, equal to at least 4 per cent. of his average salary for a year's service. This money, too, is paid into the national pensions fund for the purpose of provision for old age. If the usual compensation (4 per cent.) fails to yield an annuity of at least 1 per cent. per year of service, it will be adequately increased by the company to yield this minimum. This annuity money can, should the claimant desire it, be in half carried over to his wife's account. The widow of one who, after at least fifteen years' service, dies from injuries received while in discharge of duty, gets half of the aforesaid compensation-on-leaving money, which, if the husband had lived, would have been his due. In the year 1898 the number of persons of this group who had a claim to a pension was 20,000.

III. BENEFIT SOCIETIES FOR OTHER PURPOSES THAN THAT OF PROVISION  
FOR OLD AGE.

*Eastern Railway.*—Eastern Railway permanent officials pay 1 per cent. of their fixed salary into the aid fund, and the company pays a like sum. Its objects are: (1) To provide medical relief for all sick employees, without distinction; also medicines, baths, bandages, and all other necessary appliances for cure. The salaries of the 170 doctors of the company are not a charge upon the fund, but are borne by the company. (2) Sick-money. If, in the course of service, illness or bodily injury be incurred, the full salary is received by the sufferer during the first three months of unfitness for work—generally, indeed, until entire convalescence or pensioning. If the injury or malady cannot be ascribed to service, the patient, if on the per-

manent staff, receives full pay for ten weeks—in many cases for longer; temporary employees receive half-pay for a fortnight at the company's expense. In the case of the first-named group, the sick-money is in half paid by the aid fund. (3) If a permanent employee who has ceased to be able-bodied is discharged without claim to pension, he gets back from the aid fund not merely his own contributions, together with interest, but also a like amount due to him from the company's contributions; that is, 1 per cent. of his salary. The temporary employee in like circumstances receives from the company a fixed grant on discharge, reckoned upon his length of service and the number of his children. (4) In addition to the usual grants in cases of stress consequent upon domestic accidents, sickness in the house, and so forth, the aid fund in 1897 gave for purposes of this kind over 116,000 francs, and the company over 43,000 francs. (5) Burial-money. This item of expense, if death have come about in consequence of service, is exclusively borne by the company. (6) Death-money (to the amount of four months pay) for the survivors of permanent employees. Half is paid by the company, which also concedes, at its sole expense, fixed payments on death to survivors of temporary employees.

In 1897 the Eastern Railway Company laid out for all the above-specified purposes a sum of 1,694,285 francs. (The amounts paid into the aid fund came to 375,451 francs; medical service, 234,514 francs; sickness and death charges, 1,035,095 francs; medicinal drinks, 49,225 francs; while the aid fund itself contributed 646,219 francs.)

*Southern Railway.*—The members contribute to their aid fund 2 per cent. of salaries; the company,  $1\frac{1}{2}$  per cent. Its objects are: gratuitous medical treatment, inclusive of curatives; sick-relief to the value of half the wages or salary; assistance in confinements; burial-money; assistance to members who, by reason of premature failure of health, have been obliged to quit service. (Anyone who, while in service, becomes temporarily unfit for work, receives his full wages or salary during the entire period of his illness.) In 1897 there were 15,649 subscribers to this aid fund.

#### IV. OTHER BENEFITS.

##### A. SICK-NURSING AND FUNERALS.

*Western Railway.*—(1) Gratuitous medical treatment of the permanent staff, and of their families. Anyone whose income does not

exceed 3,000 francs also receives gratuitous medical aid. (In 1897 this item consumed over 364,000 francs.) Distribution of medicinal drinks. (2) Sick-relief to the amount of half-pay for three months, very often even longer. Contributions for burial to the extent of a tenth of the dead man's annual salary. Paris makes an additional allowance of 50 francs under this head, for the purchase of ground for a grave. (3) Temporary assistance where special attention is deemed desirable in case of money embarrassments arising out of illness or from additions to family (1897, roughly, 428,000 francs). (4) Assistance fund for temporary workers in workshops and stores, to aid in obtaining gratuitous medical attendance and curatives; also to grant sick- and burial-money. Into this fund members and the company always pay 2 per cent. of wages and salaries. In 1897 the company spent for this fund over 75,000 francs.

*Northern Railway.*—Gratuitous medical attendance (215 railway doctors are appointed), and, for the more necessitous workmen, also gratuitous medicines. These appointments cost in the year 1897 more than 710,000 francs. In addition to this, distribution of medicinal drinks and contributions to funerals.

*Paris-Lyons-Mediterranean Railway.*—Gratuitous attendance together with medicines for sick employees whose salaries do not exceed 3,000 francs. Sick people receive at least half their pay, often the whole. During the summer cooling medicinal drinks are distributed; warming drinks in the winter.

*Paris-Orleans Railway.*—The entire staff receives gratuitous medical attendance, as do also their families. Medicines may be claimed unpaid by those only whose income does not exceed 2,100 francs (1897, roughly, 402,000 francs). By way of sick-money, wages or salaries are paid either in full or in part. There are, in addition, in many cases extra aids for the sick poor. Medicinal drinks are served out (1897 over 160,000 francs).

#### B. VICTUALS.

*State railways.*—The provisioning department of the state railways provides its staff and their dependent families with the ordinary necessities of life. These are furnished on very low terms on the co-operative system and at cost prices, but with the reservation that no one may take goods beyond the amount of a third of his salary or wages. This regulation is probably devised with a view to encouraging habits of thrift. The superintendence of this arrangement—"stores" or

*économat*—is placed in the hands of a committee appointed by the head of the railway directorate.

*Western Railway.*—Likewise (since 1875) an *économat* which supplies all manner of useful articles and provisions at low prices. In 1897 the turn-over amounted to about 1,126,000 francs.

*Eastern Railway.*—The company gives its support (in 1897, to the amount, roughly, of 59,000) to the twenty provision clubs of the staff.

*Southern Railway.*—Supply of articles of food at cost prices to all employees who desire them. In 1897 the company's restaurant at Bordeaux sent out some 170,000 meals at cost price, at an average of 47 centimes apiece.

*Northern Railway.*—At several points along the railway network there are "stores" (*économats*), which, in their respective districts, supply employees with all sorts of foodstuffs of best quality at far lower than current prices; also charcoal at a saving of 28 per cent.

*Paris-Lyons-Mediterranean Railway.*—Eating houses at Paris and Villeneuve in connection with the numerous food clubs of the staff.

*Paris-Orleans Railway.*—Food at cost price. At the Paris workmen's dining house of the company a meal is offered for 53 centimes that comprises soup, meat, vegetables, and a quarter liter of wine.

#### C. LODGING FACILITIES.

*Eastern Railway.*—Over 3,650 employees have free lodgings, inclusive of light and heating. The estimated rent value of these gratuitous dwellings amounts altogether to 10 per cent. of the salary or wages, and is entered in the fixed salaries account. Also the company allows expenses of change of dwelling and removal. These are very generously estimated, and generally leave a profit over (in 1897 a round 2,672,000 francs).

*Northern Railway.*—Free quarters in part, and in part very cheap dwellings in the excellent, very healthily placed workmen's quarters that have been founded at several junctions.

*Western Railway.*—Free lodgings, inclusive of heating and lighting for station masters, guards, and so forth; bed-rooms, bath-rooms, wash houses, etc., for the train hands. Numerous employees earning less than 1,800 francs a year receive additions of from 50 to 250 francs toward their lodging expenses.

*Paris-Lyons-Mediterranean Railway.*—Cheap, healthy dwellings in the so-called cottage colony at Laroche, where the company rents

yearly 124 houses of two, three, or four rooms for no more than 120, 140, or 180 francs apiece. For 10 francs a year a garden of close upon half an acre may in addition be obtained. These letting prices yield the capital involved an interest of from 3 to 4 per cent. At Cullins the railway directorate gives away some 160 dwellings at from 180 to 252 francs; at Paris and Veynes together 86 dwellings.

*Paris-Orleans Railway.*—Grants at only 3 per cent. interest of contributions to such building companies as will bind themselves to let cheap and healthy houses to the railway's employees.

#### D. MONEY, LOANS, AIDS, GRATUITIES.

*Southern Railway.*—In 1897 gratuities amounting to over 1,500,000 francs were paid to deserving employees.

*Northern Railway.*—Occasional aids to deserving officials or workmen whom illness or other mischance has brought into money difficulties (in 1897 about 82,000 francs). In cases of need, such as births, marriages, etc., advances at only 2 per cent. interest out of the "Léon Say fund" of 100,000 francs. Between June 1, 1896, and June 1, 1898, 735 employees received in this way 115,000 francs. This fund, founded by the directorate of the railway company, is managed by a committee of five chosen by the staff. Every year a certain number of employees' daughters receive dowries of 1,000 francs.

*Eastern Railway.*—Numerous employees (in 1897 over 8,000) receive gratuities. (These amounted in 1897 to over 1,136,000 francs.)

*Western Railway.* Loans free of interest to be repaid in monthly instalments, never to exceed one-tenth of salary (in 1897 close upon 98,000 francs).

*Paris-Orleans Railway.*—Sick employees or those burdened with large families receive various kinds of aid (in 1897 some 893,000 francs). Individuals dismissed from service before their time received in 1897 altogether over 95,000 francs. Among officials and workmen whose incomes fall short of 3,000 francs was divided in that same year a round sum of 1,132,000 francs. Within the same space of time the company devoted above 412,000 francs to other gratuities.

#### E. SCHOOLS AND EDUCATION.

*Eastern Railway.*—A number of technical and elementary schools for children of employees, together with 190 different kinds of scholarships.

*Southern Railway.*—Gratuitous instruction of 210 children in the

company's national school at Morcaux ; endowment of nine free bursaries at a secondary school.

*Northern Railway.*—Various contributions to schools. Stipends and foundations for subjects of study, also for higher schools. Further, a technical school for apprentices at La Chapella for workmen's sons who desire to prepare for railway service.

*Western Railway.*—Within the Paris Central have been since 1875 a children's school, a crèche, and a home (in 1897 some 1,000 children. In connection therewith is a work school which gave employment in 1897 to over 500 wives of railway workers, who earned almost 38,000 francs. For this purpose the company paid during the year 1897 a round 95,000 francs. Along with this ninety free entries into several schools for orphans and ten scholarships.

*Paris-Lyons-Mediterranean Railway.*—At Paris the company supports a workroom in which sixty-two girls—employees' daughters—sew linen, and learn to mend, and twice a week receive instruction in the domestic occupations of women of their class. Similar arrangements exist at Laroche and Villeneuve. In both these places there are also children's schools and crèches. Moreover, the board undertakes the cost of 152 orphans of its staff at different institutions in France and Algiers.

*Paris-Orleans Railway.*—Classes and lectures for the apprentices of the Paris workshops. In connection with the latter are also a school and a workroom for the children of employees. Ten free admittances to technical schools are open to boys, and for girls ten to an orphanage (in 1897, 50,000 francs).

F. ADDITIONS FOR INCREASED EXPENSES OF LIVING AND CONTRIBUTIONS IN OVER-LARGE FAMILIES.

*Eastern Railway.*—Additions for added expenses at places where the cost of living is heavy, or to cover special expenses: in 1897, about 117,000 francs; alone at Paris during the great exhibition of 1889, over 416,000 francs. Those of the permanent employees whose income does not exceed 2,000 francs receive, if they have three children under eighteen years of age, a monthly payment of four francs; for each additional child, two francs more. In 1897 the company's payments in this respect amounted to 101,000 francs.

*Northern Railway.*—Additions of from 50 to 200 francs to married employees who, with a yearly income below 1,800 francs, have more than two children (in 1897, a round 270,000 francs).

*Western Railway.*—Anyone who, with an income not exceeding 1,600 francs, has more than two children under sixteen years of age, receives from the third, up to the sixth child, a yearly addition of 24 francs for each. If he lives in towns where the cost of living is high, an extra yearly supplement of from 60 to 120 francs is added. In 1897 the company disbursed for these two forms of supplementary benefits a round 700,000 francs. At times of quite abnormal dearth—bad harvests, severe winters, and so forth—many employees, of those who draw less than 2,400 francs, receive supplementary pay (during the great Paris exhibition of 1889, 605,000 francs).

*Southern Railway.*—Grants supplementary payment at times when rate of living is high.

#### G. PREMIUMS.

*Eastern Railway.*—The engineers and firemen receive bounties for cost of living, sickness, heat saving, etc., which premiums enter into the wages and salaries account of the company. These, in 1897, amounted to 2,226,000 francs.

*Northern Railway.*—Premiums for starting the trains punctually, and for saving fuel, etc.; mileage money.

*Western Railway.*—Grants all sorts of premiums.

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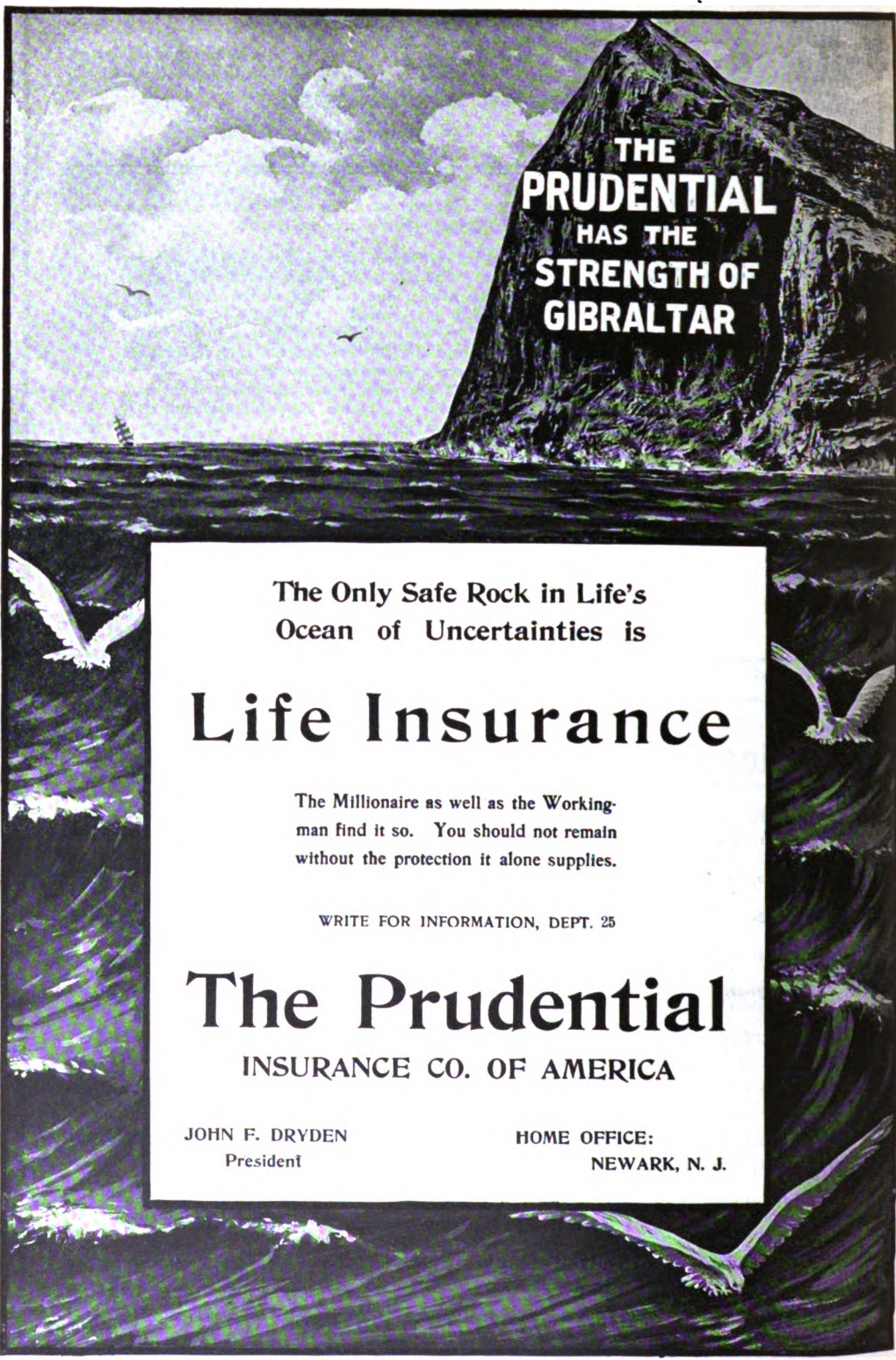
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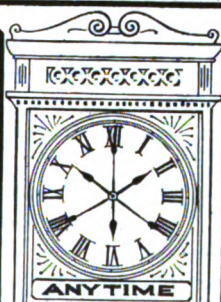
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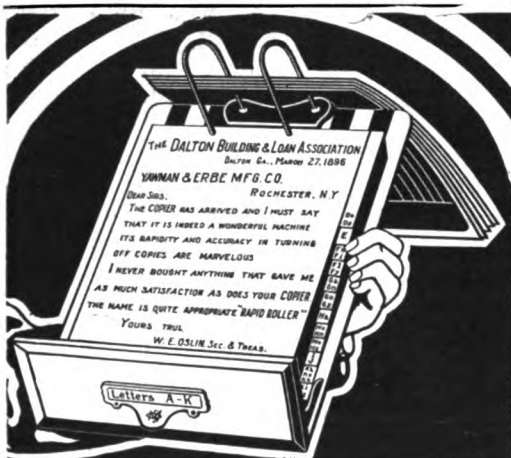
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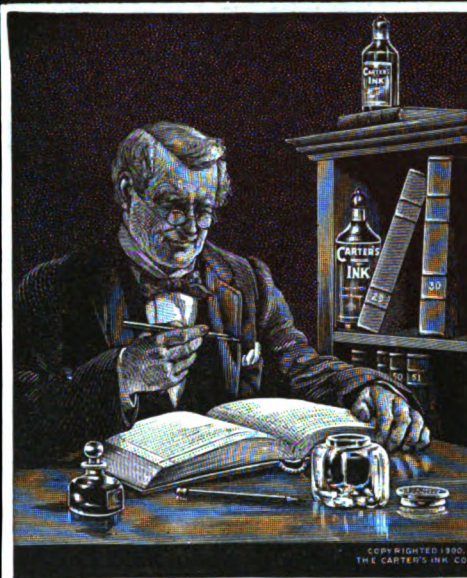


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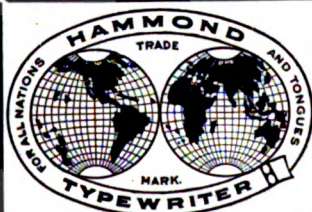
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Each day has its cares  
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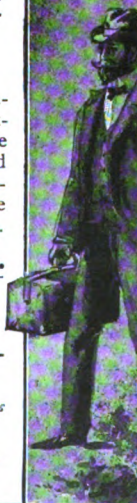
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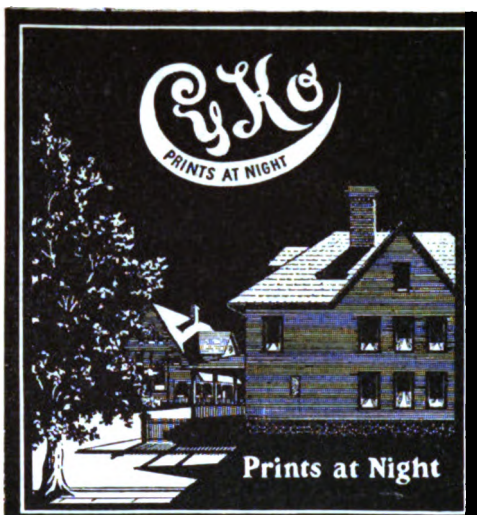
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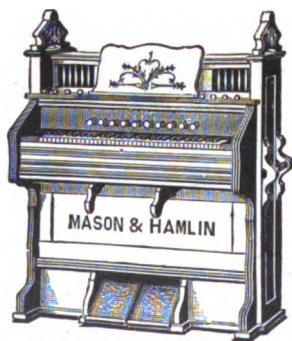
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